

Journal of Projective Techniques & Personality Assessment

PUBLISHED BY THE SOCIETY FOR PROJECTIVE TECHNIQUES AND
PERSONALITY ASSESSMENT, INC.

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JOURNAL OF PROJECTIVE TECHNIQUES & PERSONALITY ASSESSMENT, published six times per year by the Society for Projective Techniques & Personality Assessment, Inc. Annual subscription (calendar year) \$10.00, foreign \$10.50. Single copies \$2.50. Publication office: 210 E. Wilson Ave., Glendale, Calif. 91206. Subscriptions, changes of address and business matters should be addressed to the Society for Projective Techniques & Personality Assessment, Inc., 210 E. Wilson Ave., Glendale, Calif. 91206, or 1070 E. Angelino Ave., Burbank, Calif. 91501. Address all Editorial Matters to Walter G. Klopfer, 7111 S.W. 55th, Portland, Oregon 97219. Entered as 2nd class matter at Glendale, Calif.

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Journal of Projective Techniques & Personality Assessment

Vol. 30

February, 1966

No. 1

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Editorial

At a recent conference in Chicago, a group of psychologists representing diverse viewpoints agreed to support the scientist-clinician model first specified at the Boulder conference. This was very heartening to me in view of my profound conviction that this is a role which can best be played by the clinical psychologist, and that through it he can make a very unique contribution both to the understanding of the principles of human behavior and to the alleviation of suffering due to behavioral pathology.

Imagine a staff meeting at a state hospital, which is attended by representatives of the usual professions. There are psychiatrists, psychiatric social workers, nurses, occupational therapists, and a clinical psychologist. The subject under discussion is the diagnosis and prognosis of patient X. Patient X is a typical paranoid schizophrenic, except that in one important respect he deviates radically from the syndrome as it is described in the standard nomenclature. After the discussion has proceeded for a time, the psychiatrists begin to glance surreptitiously at their watches. After all, the patient is almost a classical case and there are only a limited number of possibilities for treating him anyway. They have many important management details to attend to and cannot spend more time discussing patient X. The psychiatric social workers are also growing restive; twenty relatives are lined up in the hall waiting to discuss important problems. The nurses are getting tense; many immediate management responsibilities await their attention.

In short order, everyone leaves the staff room except for one person, the clinical psychologist. Why is he still there?

First, he is there because he does not have urgent management respon-

sibilities. There are medical and social work emergencies, but the clinical psychologist's responsibilities are more long range and indirect. Also, he is still there because the situation puzzles and intrigues him. Does patient X really deviate in this one important respect from the syndrome of paranoid schizophrenia? The first step should be to check the reliability of this finding. This can be done by giving further tests, interviewing the patient, discussing him with nurses, other patients or relatives, or observing his behavior. If this deviation from the syndrome is found to be substantiated, then the next step might be to check on the uniqueness of the finding. Perhaps other patients in the hospital show this same feature. Perhaps patients in other hospitals do. Perhaps a new subcategory of schizophrenia has been discovered. It may even be that this will be the beginning of a research program which will change the entire system of classification of mental disorders.

I believe that it takes a clinical psychologist who is both an enthusiastic clinician and a rigorous researcher to think along these lines and to follow such a program through. As my friend Earl Taulbee once said "I am doing research every time I sit down to talk to a patient". By this he means that the scientist-clinician adds to his apperceptive mass and generates research ideas conjointly with the accumulation of clinical experience. Only a man versed in both the art and science of clinical psychology can fulfill this complex role.

In the pages of this issue are to be found works representing the diverse faces of the scientist-clinician. In addition to the many research articles dealing with objective and projective approaches to the assessment of personality, there is a description of a new clinical technique (Lickorish),

an interesting case presentation (Kaldegg), an important commentary on professional practice (Rosenthal), and book reviews on three diverse and challenging works. It is to be hoped

that in the pages of this Journal we can reinforce and keep alive the scientist-clinician model in which I believe.

WALTER G. KLOPFER

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Mechanical requirements

| | |
|-----------------|---------------------------|
| one page | 29 x 47 picas |
| half-page | 29 ems wide x 23 ems deep |

Circulation

| | |
|--------------------------|---------------------------|
| At September, 1965 | 2400 (Domestic & Foreign) |
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Predictive Efficiency as a Function of Amount of Information and Level of Professional Experience¹

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Summary: Both the amount of information available to judges and their level of professional training have been identified as variables relevant to accurate personality predictions. This study represented an attempt to determine the optimal amount of Rorschach protocol information essential to accurate personality descriptions for judges at various levels of professional experience.

Four groups of 25 judges (Fellows in the Society for Projective Techniques, recently graduated Ph.D.'s, Graduate and Undergraduate students) responded to sets of true-false personality statements which referred to a patient whose Rorschach protocol had been supplied to them.

The results indicated that aside from occasional exceptions: 1. No significant improvement in predictive accuracy occurred as the level of training and/or experience increased. 2. Increases in the amount of protocol information did not significantly improve the judges' understanding of the patient, as measured by the criterion. 3. The Rorschach appears best equipped to answer questions regarding the degree of psychological disturbance, emotional control, and adequacy of thinking processes.

In part because of the time consumed by diagnostic procedures, some question has been raised regarding their value (Hathaway, 1959; Marks, 1961; Meehl, 1959). According to a survey by Odum (1950), the Rorschach test requires an average of four hours to administer and interpret. There have been several attempts at time-saving modifications (Harrower-Erickson, 1943; Munroe, 1945; Powers & Hamlin, 1957) but none of these has met with resounding success, most clinicians apparently believing that valuable information is lost unless the full test is administered and scored in the traditional fashion.

The results of studies comparing the predictive accuracy of judges as a function of the amount of information available to them have been equivocal. Some have found that ac-

curacy is enhanced as more information is made available (Borke & Fiske, 1957; Cline, 1955; Dailey, 1952; Sines, 1959); but others (Gage, 1953; Soskin, 1954, 1959; and Weiss, 1963) have reported that removing test information may, in some cases, increase predictive validity. While it may be true that additional information does not always add to predictive accuracy when it is one test relative to an entire battery, the same may not be true when the increments in information involve integral portions of an individual psychological test instrument, such as the Rorschach.

A search of the literature revealed that prior attempts to vary the amount of available Rorschach protocol information consisted primarily of comparisons between "content" and "determinants" (Hertz, 1959; Shapiro, 1959; Symonds, 1955). None was found which attempted to vary systematically the amount of protocol information available to a judge as a basis for making predictions.

Another variable commonly considered as relevant to predictive performance is the level of formal training or professional experience. It would seem logical that predictive

¹ This study was completed in partial fulfillment of the requirements for the degree of doctor of philosophy at the University of Portland. The author is indebted to the dissertation committee, Drs. Walter G. Klopfer, Gordon T. Filmer-Bennett, William A. Botzum, and John R. Donoghue, and to the many psychologists who volunteered their time to act as judges for the study.

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performance should increase as the level of training rises; similarly, it seems likely that increased professional experience should improve the accuracy of predictive judgments.

However, investigations comparing the predictive performance of naive judges with experienced clinicians typically do not yield significant differences (Cline, 1955; Grigg, 1958; Kessen, 1957; Soskin, 1954, 1959). Only Klehr (1949) was able to report that increased experience improved accuracy.

Other studies (Cline, 1955; Luft, 1950; Taft, 1955) have compared psychologically trained groups with groups of judges specializing in other areas and found that the non-psychologists perform more accurately than the psychologists. Only Cline (1955), using engineering trainees, obtained results which disagreed with this conclusion.

More recently, however, Weiss (1963) demonstrated that while physical scientists were more accurate than psychologists given maximal information, psychologists performed more accurately when only minimal information was available. This suggests that the psychologist's training uniquely prepares him to draw inferences on the basis of minimal external cues.

This study represented an attempt to determine the optimal amount of Rorschach protocol information essential to accurate personality descriptions for judges at various levels of professional experience. It was hypothesized that interactions would occur between the judges' level of experience and the amount of information available to them, i.e., that as the level of experience rose, less protocol information would be required for equivalent performance.

METHOD

Four groups of judges were given Rorschach protocols so divided that increasing amounts of protocol infor-

mation could be presented. They were asked to respond to a set of true-false personality statements which served as a criterion measure.

The four groups of judges chosen were: (a) 25 Fellows in the Society for Projective Techniques with at least ten years of clinical experience with the Rorschach, (b) 25 recently graduated Ph.D. psychologists with less than five years experience with the Rorschach, (c) 25 graduate students in clinical psychology who had just completed training courses in Rorschach administration, and (d) 25 undergraduate psychology majors who were unfamiliar with the technique.

The Rorschach protocols upon which the judges based their predictions were obtained from psychiatric inpatients and were administered and scored according to the Klopfer method (Klopfer, Ainsworth, Klopfer & Holt, 1954). The five protocols were divided among the 25 judges in each group. Thus Protocol "A" was seen by five Fellows, five recent Ph.D.'s, five graduate students and five undergraduates. Likewise, Protocols "B", "C", "D", and "E" were divided among the remaining 20 judges in each group.

The division of protocol information was as follows:

1. Free association.
2. Free association plus location chart.
3. Free association and location chart plus the inquiry for determinants, including the testing of limits.
4. The entire scored protocol including the Free Association, location chart, and inquiry, plus the psychogram and the quantitative scores contained in the Klopfer and Davidson Individual Record Blank. This division of data was presented sequentially to the judges in the form of four consecutive booklets representing increasing amounts of protocol data.

One hundred and fifty true-false personality statements (Little & Shneidman, 1959) about the patient

from whom the Rorschach protocol was obtained were presented to 20 members of the hospital staff who were familiar with this patient. The personnel included physicians, psychologists, social workers, graduate and student nurses, and psychiatric aides. From this larger pool of items, a smaller number was selected on the basis of high agreement among the hospital personnel. Those statements which were answered in the same direction by a significantly large number of the personnel were then used as criterion statements. The resultant number of statements, which varied from 58 to 76 for the five patients, were presented to the judges who were asked to indicate the response they thought most appropriate to the patient whose protocol they had studied.

They were instructed to study the protocol data available in the first booklet and respond to the personality statements, then study the additional data presented in the second booklet and again respond to the statements, continuing through the four booklets. They were cautioned not to refer to or alter their earlier responses.

RESULTS

Since the variances within the groups were not homogeneous on three of the five protocols, non-parametric statistics were employed. The results were analyzed as five separate experiments, then the probabilities associated with these experiments were combined, using chi square to test the significance of the set of results.

The Friedman one-way analysis of variance used to determine whether differences existed between the treatment conditions (amount of information available to the judges) revealed no significant increases at the .05 level in the number of correctly answered statements as the protocol information increased, for any of the five protocols at any level of judge experience (Table I). Chi square was then used to make a joint evaluation of the probabilities associated with each of the five protocols at each of the levels of judge experience. The results indicated no significant increases at the .05 level in the number of statements answered correctly as protocol information increased (Table I). However, a similar analysis performed on the Friedman probabilities for each protocol with the judge levels combined, achieved a X^2 of 22.16 (10 df) which was significant beyond the .01 level.

In order to determine whether there were differences in the number of criterion statements answered correctly as the level of professional experience increased, Kruskal-Wallis one-way analyses of variance for independent groups were performed on each protocol. They were computed for each treatment condition (amount of protocol information) individually, and for the average of the four treatments. Only one of these 25 analyses proved significant. On one protocol when only the Free Association was presented, differences existed between the groups of judges.

One-tailed Mann-Whitney tests

TABLE I—Cell Entries Indicate Probabilities Associated with Friedman Test X^2 Values at Each Level of Judge Experience for Each Protocol. Right Hand Column Gives Probabilities Associated with X^2 Tests for Significance of the Preceding Set of Probabilities Combined

| Judge Level | Protocols | | | | | Combined across protocols |
|-------------|-----------|-----|-----|-----|-----|---------------------------|
| | A | B | C | D | E | |
| Fellows | .85 | .88 | .06 | .32 | .30 | .37 |
| New Ph.D. | .49 | .88 | .62 | .33 | .85 | .88 |
| Grad. | .19 | .77 | .32 | .62 | .18 | .41 |
| Undergrad. | .46 | .80 | .96 | .78 | .95 | .99 |

which were used to evaluate these differences showed that both the Fellows and the recent Ph.D.'s exceeded the graduate students but neither group surpassed the undergraduates. When the results of the Kruskal-Wallis tests for each of the five protocols were combined, X^2 indicated that only one of the combinations was significant beyond the .05 level. The aforementioned differences on one of the protocols were sufficient to cause a significant X^2 at the Free Association level of protocol information.

Because there appeared to be consistent trends among the answers to the questionnaire items, an analysis was made of those items most frequently answered correctly and those most frequently missed by the judges. Because of the high degree of similarity observed, the returns of the Fellows and the recent Ph.D.'s were combined for this analysis; the returns of the less experienced judges were omitted as being unrepresentative of psychologists in general.

The items missed significantly ($p=.05$) more often by the judges seemed to group themselves into four general categories.

a. "Sexual Adjustment" — typical items in this category were like the following: "He considers sex a rather shameful thing." "His sexual needs are only moderate." "He suffered some early sex trauma." "Has a definite homosexual conflict."

b. "Hostility" — items characteristic of this category were: "Is quite hostile toward women." "Has considerable hostility toward authority figures." "Feels guilty about his hostile impulses." "Usually only gets angry when appropriate."

c. "Temperament" — included here were such items as: "He is a calm person." "Is a very quiet person." "Has an even temperament."

d. Psychosomatic complaints — typical items included: "Usually develops physical symptoms when tense or anxious." "Has many physical com-

plaints." "Has many psychosomatic symptoms."

The items most often correctly answered by the judges (using Chi square at the .05 level) tended to group themselves into the following classifications:

a. "Intelligence, thinking" — typical items here were: "His thinking is quite unrealistic." "His thought processes are confused." "His thinking and ideas tend to be clearcut." "Is below average in intelligence." "Has a logical, orderly approach to problems."

b. "Emotional and impulse control" — such items as: "Is quite emotional at times." "Is a restless and impatient person." "Is easily aroused emotionally." "Is impulsive."

c. "Affectional needs, acceptance and rejection"—items here resembled: "Has a great need to be loved." "Has achieved a comfortable separation from his parents." "Has a childish need for affection." "Has little need for affection." "Is eager for social approval." "Shows no great fear of rejection."

d. "Acceptance of responsibility"—characteristic items: "Tends to blame his mistakes on others." "Always has excuses for his behavior." "Blames other people when he can't get along with them."

e. "Amount of drive, ambition" — items such as: "He possesses much drive and ambition." "Is extremely competitive." "Is an energetic person." "Is mild and unassuming."

f. "Degree of psychological disturbance" — these items included: "He has had recognized psychological difficulties for years." "This is his first need for psychological help." "His psychological difficulties will clear up rapidly."

A third general category of statements was noted which yielded significantly more correct responses on some protocols and significantly fewer correct responses on others. This general

classification concerned "Social relationships" and contained items such as: "He usually withdraws in social situations." "Doesn't enjoy being around people." "Is very superficial in relationships with others." "Is able to develop good warm relationships with others." "Not very responsive to friendly approaches from others." "Has a satisfactory social adjustment."

DISCUSSION

The results of this study raise considerable doubt concerning the value of the Inquiry, Testing-of-Limits, location chart, and quantitative measures as aids in improving personality judgments based on the Rorschach. No significant increase in the accuracy of judgments occurred as these portions of the protocol were added to the total fund of information from which judgments were to be made. In almost every case, items judged incorrectly on the basis of the Free Association alone, continued to be judged incorrectly as additional information was added. Although occasionally a judge would correct his decision, he often would revert back to the original incorrect decision by the time he had completed his judgments.

The failure of the data to meet the homogeneity assumptions required by a parametric analysis of variance provided a serious obstacle to interpretation, in that it was impossible to test for the existence of interaction effects, as had originally been planned. However, in order to provide clues as to their existence, parametric analyses of variance were computed. (Note: These results must be interpreted with extreme caution since the data do not meet the homogeneity of variance requirements and consequently do not actually fit the sampling distribution of F .) Interactions between the judges' level of professional experience and amount of information were not observed for any of the five protocols using the .05 level of significance. The more con-

servative interpretation recommended for use with data that deviate from the F -test assumptions would increase our confidence in the non-existence of interaction effects. Apparently either all of the cues necessary to make judgments are available in the Free Association, or possibly the clinician is not taking advantage of any information which appears in the location chart, Inquiry, and Record Blank. Hopefully, future research will provide clarification.

The finding that predictions based only on the Free Association are as accurate as those based on the entire test carries some important implications for Rorschach training. Often, a goodly percentage of Rorschach training is devoted to adequate Inquiry, correct scoring and the interpretive hypotheses associated with the resultant scores. However, this study suggests that these may be of lesser importance in determining the final judgments and correspondingly might conceivably receive less training emphasis. It further suggests that greater emphasis should be placed on increasing the student clinician's experience with diagnostic categories of patients and their Rorschach protocols. In this way, the critical protocol cues which apparently appear in the Free Association might become more quickly connected with typical patient characteristics. While the composition of these "critical cues" is uncertain at present, it may be that the content of the percepts, the language idiosyncracies, and the particular manner of associating will distinguish one category of patient from another.

The second major finding of this study was that the level of predictive accuracy between the groups of judges did not vary despite their disparate backgrounds. There were few significant differences between undergraduates, graduate psychology students, recently graduated Ph.D.'s and highly experienced SPT Fellows. In fact, general psychology students with no Rorschach experience whatsoever were

able to predict nearly as well as the experts with many years of experience. This was true regardless of whether the predictions were based only on the Free Association or on the entire protocol. Although surprising, this was not entirely unexpected. Much of the prior research had suggested that no differences should be expected between naive and experienced judges. However, Weiss' (1963) conclusion that experienced, trained psychologists might be more proficient than untrained individuals when presented with only minimal information suggested that the more experienced Fellows should perform more adequately than the untrained students when supplied with only the Free Association, but this did not happen.

Sarbin, Taft, & Dailey (1960), discussing validity, recognize three major methods of establishing the truth value of clinical inferences: test of validity through consensus; test of validity through congruence with direct examination; test of validity through prediction or postdiction.

The first involves agreement on the part of a number of judges as to the existence of an attribute in a given subject, the second involves congruence between the clinical inference and observed behavior, and the third most preferred method, confirmation of predictions or postdictions by actual knowledge.

Although primarily making use of the preferred postdictive method, this study potentially suffers from the shortcomings of the other two. The psychologists who served as Rorschach judges were required to make postdictive judgments regarding the behavior and characteristics of their test subject. However, the criterion of "truth" against which these postdictions were measured was made up of a combination of consensual and congruently validated observations. Thus, the high agreement observed among behavioral observers may have been due to a commonly misconceived

frame of reference, or behavioral inferences based on incorrect relationships between observed and inferred facts. However, in a study which makes use of the observations of human judges as a criterion, such error appears unavoidable. Statistically speaking, the likelihood of error is reduced to an improbability but certainly not an impossibility.

Overall, the Rorschach, in the hands of the experienced, qualified psychologists (Fellows and new Ph.D.'s) was able to provide correct answers to only 65% of the objective questions asked. One objection raised was that the Rorschach is not really intended to provide answers to the type of objective personality questions asked in this study, consequently, this fact has little meaning. In fact, one judge actually suggested that "Extrapolation from Rorschach data to behavior of the subject is not really admissible." While this statement is not completely devoid of validity, it seems an unfortunate state of affairs when the most widely used psychological diagnostic instrument (Sundberg & Tyler, 1962) cannot at least provide *clues* regarding personality features so prominent that they are overwhelmingly agreed upon by persons actually viewing the patient.

Two alternatives suggest themselves. One, the possibility exists that the Rorschach is predicting to some level of personality unseen by the human observer. However, this point of view is contradicted by a recent study by McGreevey (1962) which suggested that projective tests predict most accurately the behavior of the subject as he is seen by those around him, just as the judges in this research were required to do.

The other alternative, that the Rorschach cannot provide answers to every personality question, is lent support by the results of this study. The analysis of items most frequently missed by the judges reveals that the confidence many psychologists have

placed in the Rorschach's ability to reveal a person's basic sexual adjustment, his tendency toward psychosomatic difficulties, or his reservoir of hostility, etc., may be unfounded. It may be that this is due to the common tendency to attend to supporting data while ignoring dissenting data.

The findings concerning the personality areas which the Rorschach is best and least able to reveal are largely tentative. The classification of items into categories was subjective; they might well have been classified otherwise. Although a total of 50 experienced judges was involved, only five protocols were used. No differences were found between the protocols on any of the variables of primary importance to the present study but differences may have existed on variables important to an investigation of Rorschach personality-area suitability. Since the sample of personality items available for the judges' decision were dependent on high agreement among the 20 behavioral observers, there was no guarantee that each important area of personality was equally represented.

The type of items which were most often answered correctly by the judges remained constant regardless of the amount of protocol information which was present, lending support to the contention that the Rorschach, particularly the Free Association, might be most appropriately used as a general guideline to the degree of psychological disturbance, emotional control, and adequacy of thinking processes.

REFERENCES

- Borke, Helene, & Fiske, D. W. Factors influencing the prediction of behavior from a diagnostic interview. *J. consult. Psychol.*, 1957, 21, 78-80.
- Cline, V. B. Ability to judge personality assessed with a stress interview and sound film technique. *J. abnorm. soc. Psychol.*, 1955, 50, 183-187.
- Dailey, C. A. The effects of premature conclusions upon the acquisition of understanding of a person. *J. Psychol.*, 1952, 33, 133-152.
- Gage, N. L. Explorations in the understanding of others. *Educ. psychol. Measmt.*, 1953, 13, 14-26.
- Grigg, Austin E. Experience of clinicians, and speech characteristics and statements of clients as variables in clinical judgment. *J. consult. Psychol.*, 1958, 22, 315-319.
- Harrower-Erickson, M. R. A multiple-choice test for screening purposes (for use with the Rorschach cards or slides). *Psychosom. med.*, 1943, 5, 331-341.
- Hathaway, S. R. Increasing clinical efficiency. In B. M. Bass & I. A. Berg (Eds.), *Objective approaches to personality assessment*. New York: Van Nostrand, 1959, 192-203.
- Hertz, Marguerite R. The use & misuse of the Rorschach method. I. Variations in Rorschach procedure. *J. proj. Tech.*, 1959, 23, 33-48.
- Kessen, W. The role of experience in judging children's photographs. *J. abnorm. soc. Psychol.*, 1957, 54, 375-379.
- Klehr, H. Clinical intuition and test scores as a basis for diagnosis. *J. consult. Psychol.*, 1949, 13, 34-38.
- Klopfer, Bruno, Ainsworth, Mary D., Klopfer, Walter G., Holt, Robert R. *Developments in the Rorschach Technique*. New York: World Book Company, 1954.
- Little, K. B. & Shneidman, E. A. Congruencies among interpretations of psychological tests and anamnestic data. *Psychol. Monogr.*, 1959, 73, No. 6 (Whole No. 476).
- Luft, J. Implicit hypotheses and clinical predictions. *J. abnorm. soc. Psychol.*, 1950, 45, 756-759.
- Marks, P. A. An assessment of the diagnostic process in a child guidance setting. *Psychol. Monogr.*, 1961, 75, No. 3 (Whole No. 507).
- McGreevey, J. C. Interlevel disparity and predictive efficiency. *J. proj. Tech.*, 1962, 26, 80-87.
- Meehl, P. E. Some ruminations on the validation of clinical procedures. *Canad. J. Psychol.*, 1959, 13, 102-128.
- Munroe, Ruth L. Prediction of the adjustment and academic performance of college students by a modification of the Rorschach method. *Appl. Psychol. Monographs*, 1945, No. 7.
- Odum, C. L. A Study of time required to do a Rorschach examination. *J. proj. tech.*, 1950, 14, 464-468.
- Powers, William T. & Hamlin, Roy M. The validity, bases and process of clinical judgment, using a limited amount of projective test data. *J. proj. Tech.*, 1957, 21, 286-293.
- Sarbin, T. R., Taft, R., & Bailey, D. E. *Clinical inference and cognitive theory*. New York: Holt, Rinehart, & Winston, 1960.
- Shapiro, D. The integration of determinants and content in Rorschach interpretation. *J. proj. Tech.*, 1959, 23, 365-373.

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- Sines, L. K. The relative contribution of four kinds of data to accuracy in personality assessment. *J. consult. Psychol.*, 1959, 23, 483-492.
- Soskin, W. F. Bias in postdiction from projective tests. *J. abnorm. soc. Psychol.*, 1954, 49, 69-74.
- Soskin, W. F. Influence of four types of data on diagnostic conceptualization in psychological testing. *J. abnorm. soc. Psychol.*, 1959, 58, 69-78.
- Sundberg, N. D., & Tyler, L. E., *Clinical psychology*, New York: Appleton-Century-Crofts, 1962.
- Symonds, P. M. A contribution to our knowledge of the validity of the Rorschach. *J. proj. Tech.*, 1955, 153-162.
- Taft, R. The ability to judge people. *Psychol. Bull.*, 1955, 51, 1-28.
- Weiss, Janis H. Effect of professional training and amount and accuracy of information on behavioral prediction. *J. consult. Psychol.*, 1963, 27, 257-262.
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 Timberlawn Psychiatric Center
 4645 Samuell Blvd.
 Dallas, Texas
- Received September 17, 1964
 Revision received June 12, 1965

A Flexible Projective Technique Applied to The Measurement of The Self Images of Voters

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Summary: The difficulties of developing projective measures that are valid, objective, reliable, simple and convenient to administer, and flexible are briefly discussed. A technique specifically constructed to overcome these problems is described in the context of an experiment designed to measure selected dimensions of the self images of voters. This technique lends itself to modification so that it may be applied to a wide range of problems where projective measures are required that can be readily evaluated in terms of their validity and reliability. In the present study validity is demonstrated using the external criterion of actual voting habits.

Comparison of the preferred and rejected self images provides a measure of reliability similar to that obtained by using equivalent forms of the same tests. Product moment correlations for all eight dimensions are significant beyond the 5% level on a two-tail test.

Differences between the two groups of middle class voters are discussed in terms of the stronger "social conscience" of middle class Labour supporters. A hypothesis regarding the ambivalence of working class Conservatives is also considered.

Among the other determinants of voting behavior it seems likely that people's self images, i.e. the way they see themselves, will affect their political affiliations. When a person votes in a political election he is asserting something about the kind of person he is, or would like to appear, as well as trying to get "his" party in. In fact, one basic question is: What makes it "his" party? In what ways does it satisfy his emotional needs, besides promising to meet his more prosaic needs for housing, employment, health services, etc.? If people were to vote solely in line with their class interests there would be no puzzle concerning the motives of either the working class Conservative or the middle class Labour voter.

It would be difficult, if not impossible, to tackle such a problem using the standard questionnaire approach. "Do you support the Labour or Conservative party?" can be asked directly with some hope of receiving a reply more or less in accord with the facts, but questions like "Would you call yourself a sympathetic/generous/am-

bitious/enterprising sort of person?" invite replies more self-aggrandising than self-revealing.

For this reason, and others, it is necessary to use an indirect approach. Projective techniques were originally developed by clinicians to get beneath the surface of presenting symptoms and reveal the underlying psychodynamics of patients with emotional disorders. The strengths and weaknesses of the standard projective tests are well known and occasion critical reviews such as those by Buros (1959), Gleser (1963) and Jensen (1959). For survey work these techniques present additional difficulties, but continue to exert the same strong appeal when the task is to unearth deeper attitudes and motives not immediately accessible to a direct approach. Some of the more recent attempts to develop projective measures in this context have been reviewed by Guest (1962) and Smith (1954).

The outstanding difficulties may be summarized as follows:

1. **Validity.** Few projective techniques can offer convincing evidence that

- they do in fact measure what they purport to measure. Face validity is one thing, but correlations with external criteria tend to be low or non-existent. The trouble with most attempts to delve into the unconscious seems to be that the deeper you dig the muddier it gets.
2. Objectivity. In many cases the scores obtained are a function of the person administering the test and/or evaluating the responses.
 3. Reliability. This is obviously bound up with objectivity, but even the most objective scores, such as answers to check lists or projective questions of the multiple choice "Most people . . ." variety, are not necessarily reliable in the sense of producing consistent results from the same respondent.
 4. Complexity. Too often the tests require a high degree of professional skill for their administration and/or evaluation. In some instances a three year full time course is recommended. This, again, affects the objectivity and reliability of the measures obtained.
 5. Convenience. This question arises if the test is unwieldy or time consuming.
 6. Flexibility. Those tests with some claim to meeting any of the five preceding requirements, (and there are very few of these), tend to be extremely limited in scope.

METHOD

With these requirements in mind a projective technique was devised to measure certain aspects of the self images of voters. In some respects the technique could be regarded as a special instance of that more generally described by Kelly (1955) and Banister (1962) as a repertory grid, although the projective aspect was introduced to deal with the particular problems involved and the mathematical treatment was also along different lines. The procedure consisted essentially of presenting eight photographs

of men to each respondent and asking him to order these along various dimensions of personality, e.g. "Which of these men would you say was the most/least determined and confident? Now arrange the others in between." There were eight dimensions of traits, chosen on *a priori* grounds as being of interest in the present context. After the respondent had sorted the photographs along each of these personality dimensions he was asked to say which of the men in the photographs he would most/least like to be, thus providing an index of preferred and rejected identification. He was then told that four of the men were staunch Labour supporters and four staunch Conservative supporters, and he was asked to indicate which he thought was which.

The total sample of 80 male voters, obtained by the random route method in London, consisted of four groups. Viz: 20 middle class Conservative, 20 middle class Labour, 20 working class Conservative, and 20 working class Labour supporters.¹

This device proved to be easy and brief to employ, and perfectly acceptable to the respondents, who found no difficulty in grasping the nature of the task or accepting the idea that people's personalities may be judged from their photographs. (Whether or not this belief is justified is another issue entirely, and quite beside the point so far as this experiment is concerned.) The measures are also objective, the instrument being administered and scored according to a set of simple rules that are independent of the person making the assessment. A respondent who identifies with a photograph he rates as high on "ambitious and enterprising" and low on "generous and sympathetic" is scored accordingly. As personality measuring techniques go, it could hardly be more flexible. By selecting whatever dimensions are thought to be of interest and

¹Our thanks are due to Mrs. Judy Dicks for her share of the door knocking involved, and for a preliminary analysis of the data.

presenting a number of suitable photographs it is possible to use this projective device to investigate almost any problem requiring an indirect measure of personality traits or, for that matter, personality dynamics.

RESULTS

All that remain are the key questions of validity and reliability. To check for validity the supposed party affiliation of the photograph with which each respondent identified positively was compared with the respondent's own affiliation. If genuine identification has occurred then the supposed affiliation should correspond with this external criterion beyond chance level. As may be seen from Table I, such a correspondence was found.

To confirm the reliability of this validity criterion, the rejected self images were used. Here the reverse argument holds — a Labour supporter should choose a supposed Conservative photograph for his rejected identification, and *vice versa* for a Conservative supporter. These rejected self image measures turned out to be less consistent than the preferred self image measures, for a reason to be discussed shortly, but still well beyond chance expectations, as shown in Table II.

In fact, wherever a significant difference was found between any two of

the four groups for the preferred self images along the eight personality dimensions investigated, its reliability was confirmed by reference to the corresponding rejected self images. This is roughly equivalent to giving each respondent two forms of the same test and checking for reliability in the usual manner. Product moment correlations were calculated for all eight dimensions and found to be significant. Only one dimension failed to discriminate satisfactorily, nearly all the respondents in all four groups wishing to see themselves as "determined and confident". Even so, the correlation between the preferred and rejected images was still significant at the 5% level of confidence.

Having established the validity and reliability of the technique, there remains the matter of the differences actually found between the self images of the four groups. These may be summarized very briefly as follows. Middle class Labour supporters see themselves as: a) more idealistic, b) more generous and sympathetic, and c) less ambitious and enterprising than any of the other three groups. Middle class Conservative supporters see themselves as: a) less idealistic, b) less generous and sympathetic and c) more anxious and cautious than the other three groups. The two Labour groups differ on the "ambitious and enterprising" dimension and on the

TABLE I—Preferred Images

| Actual affiliation of respondent | Judged affiliation of voter with preferred image | | Total |
|---|---|--------|-------|
| | Conservative | Labour | |
| Conservative | 32 | 8 | 40 |
| Labour | 10 | 30 | 40 |
| Total | 42 | 38 | 80 |
| $\chi^2 = 22.1$ d.f. = 1 $p < 0.001$ (2 tail) | | | |

TABLE II—Rejected Images

| Actual affiliation of respondent | Judged affiliation of voter with rejected image | | Total |
|--|--|--------|-------|
| | Conservative | Labour | |
| Conservative | 17 | 23 | 40 |
| Labour | 29 | 11 | 40 |
| Total | 46 | 34 | 80 |
| $\chi^2 = 6.17$ d.f. = 1 $p < 0.02$ (2 tail) | | | |

"generous and sympathetic" dimension, while the two Conservative groups differ along the "anxious and cautious" dimension, all differences being significant beyond the 5% level of confidence. On "idealism" the difference between the two middle class groups is again significant at the 5% level, as is the difference between the same two groups on the "generous and sympathetic" dimension.

The two working class groups do not differ significantly along any of the eight dimensions investigated, and it would seem that we must look elsewhere for the characteristics that distinguish between these groups.

DISCUSSION

Returning to the fact that the validity check was not so highly significant for the rejected as for the preferred self images, this was found to be due entirely to the working class Conservatives' failing to conform to the overall trend. Although they usually identified positively with a photograph of a presumed Conservative, nevertheless they also tended to reject presumed Conservatives almost as strongly as the two Labour groups when it came to the rejected self image. This anomalous result can be interpreted in one of two ways. Either the technique is not as valid or reliable as it would otherwise appear to be, pure chance having produced a statistically highly improbable result. Alternatively, this paradox reflects an underlying emotional conflict borne by those working class Conservatives who vote against their class affiliations for reasons of which they are unaware. Such ambivalence could easily be "explained" within the framework of psychoanalytic theory. The scientific problem remains, however, and is twofold: a) to show that the result is reproducible, and b) to make some logical deduction that is empirically

verifiable or, what is more to the point, refutable.

Although this cannot claim to be much more than an exploratory study, the technique appears to be sound, and goes a long way towards meeting all six of the requirements for projective measures originally discussed. In addition, the finding regarding the middle class Labour supporters would seem to fit in well with the hypothesis that this section of the population is inclined to manifest a stronger social conscience than the other three groups concerned. (Liberals were excluded from this experiment in order to simplify the issues involved.) The hypothesis to emerge regarding the ambivalence of the working class Conservative is of considerable psychological interest and is being pursued in a separate follow-up study. Should it be confirmed it would open up an approach to the measurement of attitudes not envisaged in the original aims of the experiment.

REFERENCES

- Bannister, D. Personal construct theory: a summary and experimental paradigm. *Acta Psychol.*, 20, 104-120, 1962.
- Buros, O. K. (Ed.). *Fifth Mental Measurements Yearbook*. Gryphon Press, New Jersey, 1959.
- Gleser, G. C. Projective methodologies. In: *Ann. Rev. Psychol.*, 14, 391-422. Ed. Farnsworth. Annual Reviews, Palo Alto, 1963.
- Guest, L. Consumer analysis. In: *Ann. Rev. Psychol.*, 13, 315-344. Ed. Farnsworth. Annual Reviews, Palo Alto, 1962.
- Jensen, A. R. The reliability of projective techniques. *Acta Psychol.*, 16, 3-67, 1959.
- Kelly, G. A. *The psychology of personal constructs*. (2 vols.) Norton, New York, 1955.
- Smith, G. H. *Motivation research in advertising and marketing*. McGraw-Hill, New York, 1954.
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Received April 1, 1965

Revision received July 15, 1965

Variables Influencing the Judged Desirability of Personality Traits¹

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Summary: The judged desirability of personality traits is shown to be influenced (1) by the sex of the judge, (2) the context of the judgment, and (3) by the valence and (4) the word frequency of the traits. Thus, female Ss make more extreme social desirability judgments than males, the sexual context of the traits leads to differential judgments, more extreme judgments are made to negative than to positive traits, and, finally, more familiar traits receive more extreme judgments than less familiar ones. In addition, these findings were qualified by various significant interactions. It is hypothesized that these results are mainly a function of differential emotive responsiveness of males and females and differential growth functions of positive and negative connotations of traits.

This investigation is concerned with differences in the desirability of trait names, as these are judged in various contexts by different groups of Ss. Cowen, in several previous studies, has shown that females judge the same trait names as either more desirable or less desirable than males (Cowen, Budin and Budin, 1961; Cooper and Cowen, 1962). It follows from these findings that meaning—in the sense of subjective connotation—varies with the sex of the S. However, other investigations concerned with different aspects of meaning have shown that in response to trait names, the sex of the S interacts with aspects of the stimulus situation, such as the valence of the stimulus traits and the sex of the stimulus person to whom the traits are attributed (Nidorf and Crockett, 1964). On the basis of the latter findings, one might seek to qualify Cowen's results by considering judged desirability in relation to stimulus differences as well as S differences. To this end, the present investigation is an attempt to answer the following questions: (1) Would male and female Ss judge the same traits as equally desirable for like and opposite sex? (2) Are traits of positive and negative valence equally desirable for like and opposite sex? And (3), are

familiar traits judged as more or less desirable than unfamiliar traits?

METHOD

Subjects. Twenty-six male and twenty-six female students enrolled in an Introductory Psychology course at the Boston University summer school served as Ss for the experiment.

The experimental task. The Ss were to judge the desirability of the same personality traits predicated of a male, a female, and a person of unnamed sex. To this end, the Ss were administered booklets on which they wrote their name and indicated their own sex. On the second page, the instructions read: "In what follows we would like you to rate the social desirability of a number of personality traits. For example, take the trait 'intelligent'; we want to know how desirable (or undesirable) you think this trait is for people in general. In other words, would you think that intelligence was a desirable (or undesirable) trait for a person to possess?" The Ss were then instructed in the use of a six point scale with which they were to judge the desirability of 60 traits appearing on the next two pages. The scale ranged from "very desirable" to "very undesirable". After the Ss judged the 60 traits for the person in general context, the booklet contained instructions for judging the desirability of the same 60 traits as they applied to a male. Finally, the Ss were again

¹The author is sincerely grateful to Jean Freilicher Nidorf, Nora Weckler, and Benjamin Mehlman for reading and commenting upon various drafts of this paper.

asked to judge the traits, but this time for a female context. The booklets were constructed so that every S judged the traits for a person in general first. However, the order of judging the traits for the male and female contexts was randomized. In addition, the two sheets of 30 traits each were randomized in each of the three contexts.

The stimulus traits. The 60 trait set which was used in the desirability judgments was selected from a larger pool of over a thousand traits used by college freshman to describe their acquaintances. The 60 traits were selected in the following manner: First, ten graduate students in psychology (five males and five females) sorted the initial thousand traits into two piles, one socially desirable, the other undesirable. (In this desirability-sort, the ten judges were asked to sort on the basis of how they thought people in general would respond, rather than in terms of their own personal feelings about the desirability of a trait.) The traits which the ten judges had unanimously agreed as positive or negative in valence (socially desirable or undesirable) were then assigned word frequencies from the Thorndike-Lorge word count. Each desirable trait was matched with an undesirable trait of the same word frequency. After care was taken to eliminate synonyms and antonyms, 30 trait pairs remained. These were randomly assigned to the two pages which constituted the 60 trait set.

In summary, the procedure involved

male and female Ss judging the desirability of 60 traits for each of three stimulus contexts: a person in general, the male sex, and the female sex.

RESULTS

The scores for each S consisted of the sum of extreme positive and negative judgments ('very desirable' plus 'very undesirable') for 40 traits selected from the original 60. (Since the distribution of word frequency was skewed towards the infrequent end of the continuum, the 20 highest and the 20 lowest frequency traits were selected to avoid over-representation of infrequent traits in the stimulus sample.) These 40 stimulus traits are listed in Table I where traits of positive and negative valence are shown in pairs matched for word frequency.

The extreme judgments were then analyzed by means of a 2 by 2 by 3 by 2 analysis of variance design consisting of the following variables: 1) the sex of the S (male *vs.* female), 2) the initial valence of the traits (positive *vs.* negative), 3) the context in which the traits were judged (person in general *vs.* male *vs.* female), and 4) the word frequency of the traits (high *vs.* low). The results of this analysis appear in Table II; however, let us consider the main effects and interactions in more detail:

Main effects. All of the main effects are statistically significant at the .01 level or below. Thus, it is found that 1) females make more extreme judgments ($\bar{X}=65.4$) than male Ss

TABLE I—Stimulus Traits Matched for Word Frequency

| High Word Frequency | | Low Word Frequency | |
|---------------------|----------|--------------------|-------------|
| Positive | Negative | Positive | Negative |
| fair | mean | outgoing | unreliable |
| interesting | bitter | forgiving | distrustful |
| democratic | loud | lenient | dogmatic |
| patient | vain | ethical | immature |
| understanding | slow | realistic | showy |
| faithful | dull | adaptable | immoral |
| musical | unhappy | versatile | neurotic |
| cheerful | silly | vivacious | obnoxious |
| polite | selfish | dependable | skeptical |
| skillful | crude | optimistic | conceited |

TABLE II—Analysis of Variance of Extreme Responses

| Source | df | MS | F |
|---------------|-----|--------|-----------|
| Between | 51 | | |
| Sex (S) | 1 | 457.10 | 10.793** |
| error | 50 | 42.35 | |
| Within | 572 | | |
| Context (C) | 2 | 21.48 | 8.524** |
| Valence (V) | 1 | 345.18 | 136.974** |
| Frequency (F) | 1 | 125.80 | 49.920** |
| SxC | 2 | 9.73 | 3.861* |
| SxV | 1 | 15.91 | 6.313* |
| SxF | 1 | 6.44 | 2.556 |
| CxV | 2 | 3.76 | 1.492 |
| CxF | 2 | 1.74 | — |
| VxF | 1 | 16.52 | 6.555* |
| SxCxV | 2 | 8.02 | 3.182* |
| SxCxF | 2 | 1.10 | — |
| SxVxF | 1 | 9.05 | 3.591 |
| CxVxF | 2 | 2.76 | 1.095 |
| SxCxVxF | 2 | 1.74 | — |
| error | 550 | 2.52 | |

* significant at below the .05 level

** significant at below the .01 level

($\bar{X}=44.9$), 2) negative traits receive more extreme judgments ($\bar{X}=83.4$) than positive traits ($\bar{X}=60.2$), 3) more extreme judgments are made when traits are in a male context ($\bar{X}=19.5$), significantly fewer in a female context ($\bar{X}=18.7$), and still fewer for a person in general ($\bar{X}=17.0$), and, finally, 4) high frequency traits evoke more extreme judgments ($\bar{X}=78.8$) than traits of a low frequency ($\bar{X}=64.8$).

Interactions. Each of the main effects must be qualified because of significant first or second order interactions: $p<.05$ for Sex by Valence, Sex by Context, Valence by Frequency, and Sex by Context by Valence.

First, consider the interaction of Sex by Valence (S by V). Although, both male and female Ss make more ex-

treme judgments to negative than to positive traits, the difference between the number of extreme positive and negative trait judgments for females (mean difference=46.7) is less than that for males (mean difference = 60.9). In other words, compared to males, the number of extreme judgments made by female Ss to negative traits is closer to the number made to positive traits. This accounts for the significant Sex by Valence interaction.

When the stimulus context is considered in the Sex by Context by Valence interaction, female Ss, in judging the desirability of the same set of positive traits for both the male and female contexts, make significantly more extreme judgments for the male context (see Table III). On the other hand, in their use of negative traits, female Ss show no evidence for making a differential number of extreme judgments in the male and female contexts; the same is true for male Ss in their use of positive and negative traits in both the male and female contexts. Now, considering the person in general context in relation to the male and female contexts, it may be seen from Table III that female Ss make significantly more extreme positive trait judgments in both the male and female contexts; whereas, male Ss make significantly more extreme judgments only with negative traits in the female context.

The components of variation contributing to the Valence by Frequency interaction are best understood by cross classifying the data by frequency and valence. This yields the following significant differences ($p<.05$) in the mean number of extreme judgments per S: high-frequency-negative ($\bar{X} =$

TABLE III—Sex by Context by Valence

Mean Number of Extreme Responses per Subject*

| | Sex of Subject | Person in General | Male | Female |
|----------|----------------|-------------------|------|--------|
| Positive | Male | 2.94 | 2.83 | 2.75 |
| Valence | Female | 4.14 | 5.65 | 4.83 |
| Negative | Male | 4.25 | 4.75 | 4.94 |
| Valence | Female | 5.65 | 6.25 | 6.21 |

*Critical difference = 0.61 ($p<.05$)

5.8) > low-frequency-negative ($\bar{X} = 5.2$) > high-frequency-positive ($\bar{X} = 4.4$) > low-frequency-positive ($\bar{X} = 3.2$). The Valence by Frequency interaction, then, is the result of a relatively large difference between high and low frequency positive traits and a relatively small difference between high and low frequency negative traits. Now, let us discuss the meaning and implications of these findings.

DISCUSSION

The following will consist of a discussion of the effects of each independent variable on the number of extreme judgments made by the Ss. The results will be interpreted in terms of the Ss' emotive responsiveness, which is an index of the emotive meaning they assign to the traits used in the study.

Sex of the S. Considering over-all sex differences in the desirability judgments, it is apparent that the present study confirms the results of Cowen: Female Ss use the more extreme ends of the desirability scale. What accounts for these results? One possible explanation, one which is both inclusive and consistent with other research findings lies in the nature of the experimental task, i.e., the desirability judgment. When a S is asked to judge the personal desirability of a trait name, he is rating his *feeling* about that trait and not the trait itself (Cooper and Cowen, 1962). In effect, the S indicates the emotive meaning (valence) that the trait has for him. Now, since it has long been recognized that females in our culture are more emotively responsive than males (see for example, Terman and Miles, 1936), it seems reasonable to suppose that the more extreme desirability judgments of females in the present study reflects their tendency to be more emotively responsive than males. Thus, to account for our results, it is hypothesized that the larger number of extreme desirability judgments used by female Ss is, at least, a partial function

of their greater emotive responsiveness.

Trait valence. The explanatory range of the hypothesis of differential emotive responsiveness between the sexes can be further extended to interpret the sex by valence interaction. First, however, let us consider some physiological responses to positive and negative stimuli.

A number of investigations exploring GSR and affectively toned judgments have shown that the GSR to unpleasant stimuli is greater than to pleasant stimuli (see Woodworth and Schlosberg, 1954). One study by Shock and Coombs (1937) not only found the GSR greater to unpleasant than pleasant odors, but also that female Ss responded more extremely than males to both ends of the unpleasant-pleasant odor continuum. Assuming that there is an underlying emotive relationship between the unpleasant and the undesirable continuums, then the physiological studies provide substance for the following interpretations of the present findings:

The fact that the present Ss made more extreme judgments to negative than to positive traits may be regarded as a greater overall emotive responsiveness to negative than to positive traits. Furthermore, the sex by valence interaction may be considered the result of a greater *differential* emotive response to positive and negative traits for males than for females, with the male's response to positive traits being less than the female's response. In other words, although the female S is more responsive than the male, the difference between the male S's response to positive and to negative traits is greater than the same difference for the female Ss. These interpretations, then, are both consistent with the findings in the above GSR studies and cohere with the hypothesized sex difference in emotive responsiveness.

Stimulus context. The effects of the

stimulus context on extreme desirability judgments can be understood by considering the fact that the connotative meaning of trait names varies as a function of the trait context (Asch, 1946; Crockett and Nidorf, 1960; Wishner, 1960). Since emotive meaning is a connotative aspect of trait meaning, it is reasonable to assume that it (emotive meaning) also varies with context changes. In the present study, variations in emotive meaning as a function of context would be seen in the differential emotive responsiveness of the same Ss to the same traits in different contexts. Thus, for female Ss, the same set of positive traits in the female context leads to more emotive responsiveness than this same set in a male context, and so on (see Table III).

Trait frequency and valence. It will be recalled that Ss respond with more extreme desirability judgments both to high frequency and to negative valence traits; whereas, low frequency and positive valence traits receive significantly fewer extreme judgments. In addition, trait frequency and valence interact as a result of a relatively large difference between the number of extreme judgments for high and low frequency positive traits compared to a relatively small difference between high and low frequency negative traits. In other words, emotive responsiveness is differentially greater to high and low frequency positive traits than to high and low frequency negative traits. These results are explicable in terms of learning phenomena: Just as the meaning of all words is learned, so too are emotive connotations.

First, let us consider trait frequency. This index is a measure of the number of times a word appears in a sample of literary forms (Thorndike and Lorge, 1944). It follows, then, that if a trait name has a high frequency count, it is probable that a S has been exposed to that trait more than, he has to a trait of a low frequency count. Thus, high frequency

traits would be expected to receive more reinforcements (exposures) than low frequency traits, and, as a consequence, the connotations of high frequency traits are subject to greater learning than the connotations of low frequency traits. Now, the particular subset of connotations dealt with in the present study are emotional connotations, and these are operationally measured by the number of extreme desirability judgments. Since the extreme desirability judgment is a response variable, it may be interpreted as an index of learning. Therefore, it may be argued that the greater number of extreme desirability judgments attached to high frequency traits is an index of more frequent reinforcement and consequent greater learning of emotive meaning. In other words, the present results may be explained by the assumption that emotive connotations increase in magnitude as a function of increasing reinforcement, that is, of increasing exposure of the trait to the S. This latter argument has a number of interesting and testable implications:

The magnitude of emotive meaning, as indicated by the number of extreme desirability judgments would be expected to show a monotonic decreasing growth function as is typical of learning curves. The precise shape of such a curve could be specified by measuring the number of extreme desirability judgments made to traits on various points along the word frequency continuum. A number of factors might be expected to influence the shape of the resultant curve. First, we have already seen that there are sex differences in emotive responsiveness. Although the Sex by Valence by Frequency interaction is not statistically significant, the addition of more points along the word frequency continuum might yield different curves for each sex. A second factor which might effect the shape of the curve would be the valence of the trait names. Indeed, the present study sheds some light on this factor: It will be

recalled that the significant Frequency by Valence interaction resulted from a greater difference in the number of extreme desirability responses to high and low frequency positive traits than to correspondingly frequent negative traits (see above). Since positive and negative traits were equated for word frequency, the latter finding suggests that the trait frequency growth function for negative emotive meaning is more accelerated than the growth function for positive emotive meaning. In other words, compared to positive emotive responsiveness, less reinforcement (exposure) is needed to bring negative emotive responsiveness to its asymptotic level. Once again, however, the precise shape of curves for positive and negative valent traits is a matter for further empirical determination.

Conclusions. With a recognition of the dangers of generalizing from a limited empirical study, let us consider some conclusions that may be derived from the results of the present investigation. In terms of the original intent of the study, it has been demonstrated that there are sex differences in judging the desirability of trait names. But, these sex differences need qualification in that the valence of the traits, the context in which the traits are found, and the word frequency of the traits, all influence the manner in which the *S* responds to trait meaning. These results were interpreted in terms of emotive responsiveness and differential learning of emotive meaning. If these results and interpretations are valid, then they have several implications for procedure in tests and measurements:

First, sex differences in emotive responsiveness should be considered when interpreting results from measuring instruments involving affective judgments. Thus, although the use of different norm groups and corresponding percentile scores for males and females has certain interpretive advantages, they tend to have an homogenizing effect rather than making

actual differences between the sexes explicit. Second, the fact that emotive meaning varies with context would seem to have importance for the interpretation of test responses involving trait predication. For example, in a test such as the TAT, a *S*'s predication of "polite", "vain", or similar traits of a female figure could not be expected to have the same emotive meaning when predicated of a male figure. The third and final implication is that since positive and negative valent traits elicit different magnitudes of emotive response measuring instruments utilizing polar opposite adjective scales would have to be interpreted with caution. Thus, for example, the evaluative scales of the Semantic Differential consist of positive and negative valent traits separated by a seven point equal interval scale (Osgood, Suci, and Tannenbaum, 1957). Since the Semantic Differential is purported to measure emotional meaning and since there is evidence to indicate that positive and negative traits elicit different magnitudes of emotive response, it would be in the interest of accuracy to separate the polar opposite traits by a logarithmic, rather than an equal interval scale.

REFERENCES

- Asch, S. E. Forming impressions of personality. *Journal of Abnormal and Social Psychology*, 1946, 41, 258-290.
- Cooper, A. and Cowen, E. L. The social desirability of trait descriptive terms: A study of feeling reactions to adjective descriptions. *Journal of Social Psychology*, 1962, 56, 207-215.
- Cowen, E. L., Budin, W., and Budin, F. A. The social desirability of trait descriptive terms: a variation in instructional set. *Journal of Social Psychology*, 1961, 53, 317-323.
- Crockett, W. H. and Nidorf, L. J. Effects of verbal context upon the connotations of personality traits. Paper read at the Eastern Psychological Association, 1960.
- Nidorf, L. J. and Crockett, W. H. Some factors affecting the amount of information sought about others. *Journal of Abnormal and Social Psychology*, 1964, 69, 98-101.
- Osgood, C. E., Suci, G. J. and Tannenbaum, P. H. *The measurement of meaning*. Urbana: University of Illinois Press, 1957.

- Shock, N. W. and Coombs, C. H. Changes in skin resistance and affective tone. *American Journal of Psychology*, 1937, 49, 611-620.
- Terman, L. M. and Miles, C. C. *Sex and personality: studies in masculinity and femininity*. New York: McGraw-Hill, 1936.
- Thorndike, E. L. and Lorge, I. *The teacher's word book of 30,000 words*. New York: Bureau of Publications. Teacher's College, Columbia University, 1944.
- Wishner, J. Re-analysis of "impressions of personality". *Psychological Review*, 1960, 67, 96-112.
- Woodworth, R. S. and Schlosberg, H. *Experimental psychology*. New York: Henry Holt and Company, 1954.
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Revision received July 20, 1965

Affect Aroused by Color, a Function of Stimulus Strength¹

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Summary: The study investigated the effects of stimulus strength of color and degree of autism on the response to color, as it reflects an affective or cognitive process. Subjects were 30 male schizophrenics, 15 high autistic and 15 low autistic. Color was measured by selected cards from the HIT containing both high and low stimulus strength.

Responses to high stimulus strength color cards reflected more affect than to low stimulus cards. High autistic subjects did more poorly on high stimulus cards. There was no significant difference between the two groups in response to low stimulus strength cards. An interaction effect was found between autism and stimulus strength.

It was concluded that the response to color is a function of the stimulus strength of the color and the degree of autism of the perceiver.

Interpretation of responses to color in projective psychological tests has led to conflicting opinions about the influence of the affective value of color on cognitive affective processes. Some theories state that response to color reflects affect and emotionality, while others hypothesize that color responses reflect a cognitive process.

Schachtel aligns himself with the theorists concerned with emotionality. He (1943) describes a passivity to the perceiver in experiencing color, which he states impresses itself on the observer, who need not pay active attention to it since the response is emotional. Goldstein (1942) asserts that "color swings the individual towards the outside world or away from it to concentrate on himself." Drechsler's (1960) intrusion hypothesis states that colors are affect-stimulating agents. They "intrude" on the perceiving individual so that the on-going thought processes are interrupted until the intrusive stimulant can be removed or otherwise assimilated. Drechsler also states that colors intrude on the perceiver in a manner similar to the intrusion of more

specifically threatening environmental or internal stimuli and arouse and break through the defenses used against threat. Those who take a more cognitive view include The Committee on Colorimetry (1953), who states that colors are perceived as surface or volume and are commonly associated with meaningful objects or composition. The Committee states that most people pay so little attention to colors which are unattached to familiar objects that it is hard to believe that the typical affective response to color can be anything but weak and indifferent. Norman and Scott (1952) state that color is nearly always associated with some object and assume that a response to color is a cognitive process requiring a higher level of functioning than one based solely on affective reaction.

Some theorists have incorporated the interaction of perceiver and stimulus. Woods (1954), in discussing responses to Rorschach inkblots, states that the more conforming the individual, the more will his responses to color be determined by social and acquired values. Adults who resist social pressures more effectively will be influenced by the unlearned color values. Piotrowski (1957) is concerned with the role of learning as well as emotionality and questions whether learned and environmentally conditioned color values can modify and

¹This article is based upon a dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Psychology at The Catholic University of America, Washington, D.C., 1964.

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over-shadow whatever unlearned and universal values colors possess. Werner (1949) finds that the adult with pathology is stimulus bound and passively subjected to sensory stimulation and likens him to the young child. Both populations should be found to have gross color perception, which is an immediate perceptual process and is passive. Witkin, Lewis, Hertzman, Machover, Meissner, and Wapner (1954) state that the structure of the field and the personality of the perceiver are the significant contributors to the responses of people. They dichotomize individual differences based on active (field-independent) or passive (field-dependent) coping with the environment and on the nature of the person's self-concept. These personality differences they confirmed within a schizophrenic population. The "passive" (field-dependent) person appears to have personality characteristics similar to persons who are high in autism, and the "active" (field-independent) person seems to be similar to persons who are low in autism.

A high degree of autism is pathological and is one of the fundamental symptoms of schizophrenia. Bleuler (1950) first used autism in describing schizophrenic thinking, which he defined as a turning away from reality, i.e., not representing occurrences in the outer world and their associations. Bellack (1959) and Goldman (1962) label autistic logic as a primary process, and the latter sees the behavior of autistic persons as a regression to a diffuse and global stage. Autism is thus generally defined as a subjective form of thinking, the content of which is largely derived from the person's private fantasy life rather than occurrences in the outer world and their associations. It is observable in the inappropriateness of the response to a stimulus situation compared with normal expectations. In this study, degree of autism was determined from the self-report of persons in the following dimensions of the Cattell 16 P. F. Test: Emotional maturity, self-

confidence, self-control, aggressiveness, timidity and self-sufficiency (Cattell, 1951; Hill, 1962).

The high autistic person reports that in a group he is self-conscious and shy; is overcome with feelings of loneliness and worthlessness; is usually wrapped up in his own thoughts. He states that when quick decisions must be made, he becomes tense and excited and is unable to think clearly. He reports that he has difficulty following what people say because of their odd use of common words. He reports that he is hurt more by how people say things than by what they say. He reports that he feels slightly embarrassed if people in stores or in the street watch him. He reports that he tends to get overexcited and "rattled" in stressful situations. He reports that he speaks in a soft voice.

The low autistic person reports that when quick decisions must be made he usually relies on calm, logical and objective reasoning. He reports that however difficult and unpleasant the obstacles, he usually perseveres and sticks to his original intentions. In a group, he states that he is usually well in touch with all that goes on around him; he has no trouble starting up conversations with strangers. He reports that he finds it easy to think out his own plans. He reports that his speaking voice is strong.

It thus appears that response to color will vary with the perceiver. Highly autistic persons who are stimulus bound (Schachtel, 1943; Werner, 1949) would be expected to respond with emotional content, while those who are field-independent (low in autism) would be expected to make more cognitive types of responses (Norman & Scott, 1952).

In addition to the personality factors, the strength of the stimulus appears to be a significant factor in determining the kind of responses which will be evoked. Hill (1962) found that autistic persons preferred and used more highly saturated (brilliant)

colors, and normal persons preferred and used low-saturated (pastel) colors. Hebb (1958) considers weak and strong stimulation as two "messages" using the same incoming lines, at least in part, but being sorted out in the central nervous system. This is explained on the basis of activation of neurons occasioned by each type of stimulation. It therefore seems reasonable to assume that when stimuli vary in strength, there will also be a corresponding variation in response.

The purpose of this study was to investigate how responses to color stimuli are influenced by the stimulus strength of the color in relation to the degree of autism of the perceiver. It was hypothesized that the degree of affect expressed in response to color is a function of the stimulus strength of the color and the degree of autism of the perceiver. The following predictions were made: (a) affect expressed in response to weak color stimuli would be low and relatively similar for high and low autistic persons; and (b) the degree of affect expressed to strong color stimuli would be high for all Ss and significantly different for high and low autistic persons. The high autistic Ss would display a high degree of affect, both verbally and in overt behavior; and the definiteness of their perceptions would be low, being more global in nature. The low autistic Ss would demonstrate a lower degree of affect, both verbally and in overt behavior; and the definiteness of their perceptions would be higher.

METHOD

Subjects

In order to test the hypotheses, a schizophrenic hospitalized population was used so that the results could be interpreted solely on the basis of autism and not on the presence or absence of pathology. To control for cultural, environmental, and sex differences, as well as length of hospitalization, all subjects were white, male veterans whose current hospitalization was no longer than two years. Intel-

ligence was equated on the basis of number of years of school completed, and no subject was used who had completed less than seventh grade or more than twelfth grade. Brain-damaged and color-blind patients were excluded. Selection of subjects was determined by scores on four factors of the 16 P. F. Test (C, H, O, and Q₃).

The C Factor is a measure of ego strength. It is on a continuum of dynamic integration and maturity, as opposed to emotionality. Cattell (1957) defines ego strength as the capacity to endure expressions of the emotional problems of others and express one's own impulses without constant defenses.

The H Factor is a measure of shyness and timidity as opposed to adventurousness and responsiveness. Cattell (1957, 1962) states that present evidence indicates this to be one of the most highly inherited of personality factors. The high H plus person having a parasympathetic immunity to threat and the high H minus person, according to this hypothesis, having an over-responsive sympathetic nervous system which makes him especially "threat reactive."

The O Factor is a measure of guilt proneness as opposed to confidence and adequacy. The high O plus person has feelings of timidity, insecurity, and unworthiness which appear related to over-inhibition of the super ego. Cattell (1957) refers to a study of personality and defense mechanisms by Wenig in which he showed a strong association of tendency to fantasy with O plus.

The Q₃ Factor measures high self-concept control as opposed to low integration. Cattell (1957, 1962) states that "by hypothesis, it represents the level of development of the conscious self-sentiment, i.e., the extent to which the person has crystallized for himself a clear, consistent, admired pattern of socially approved behavior, to which he strives to conform." Raw scores of the 16 P. F. Test convert to standard

scores called sten scores. Each factor has a negative pole ranging from one to four, and a positive pole ranging from seven to ten. Sten scores, five and six, are the "average" scores.

High autistic subjects had scores closer to the pathological extremes, and low autistic subjects had scores closer to the average of the measures. The final experimental population consisted of 15 high autistic and 15 low autistic schizophrenics, a total of 30.

Materials

Twenty cards from the Holtzman Inkblot Test (HIT) were selected on the basis of brilliance of color to test the hypothesis. Holtzman (1961) states that achromatic stimuli may be responded to as color when they are referred to as black, white, and gray and are therefore considered as color in the HIT. The same rationale was used in this study. Sixty-four cards selected from Forms A and B were sorted by 26 staff members of the hospital on the basis of brilliance of color as experienced by them. From these data were selected the ten cards chosen as most brilliant and the ten cards chosen as least brilliant. Two cards in the low stimulus color group and one in the high stimulus color group have no chroma; and, in addition, one other card in the high stimulus group is basically black.

The 20 cards were arranged in pseudo-random order and administered in the same order to all Ss. All Ss were introduced to the task by means of Card X, a trial card used in the HIT but not scored. All subjects were seen individually in the same room. Lighting was held constant.

Procedure

The HIT was administered and scored according to the standard instructions. In addition to recording all percepts, all other vocalizations and any behavior which might be considered a response to the stimulus were recorded. Both the Holtzman's AA scale and an OB scale, devised for

scoring behavioral manifestations for this study, were scored immediately after each subject was tested so that original inflections and behavioral manifestations would be maintained and that distortion by recall would be minimum.

Since this study was concerned with affect expressed, the HIT was evaluated for this variable only. Three measures of affect were used: (a) affect aroused (verbal) (AA); (b) overt behavior (OB); and (c) form definiteness (FD). The latter deals with the concept reported, regardless of goodness-of-fit to the blot (Holtzman, 1961).

Holtzman, who devised the AA scale, did not include it as one of his variables in his final publication of the test because satisfactory scorer agreement was not found. This was explained by the fact that the protocols were not scored by the persons administering the test. This scale has a positive loading with Holtzman's Factor III, which includes pathognomic verbalization, anxiety, and hostility. Since in this study administration and scoring were done by the same person, the AA scale was used.

The behavioral manifestation scale (OB) was devised for this study. A list of sample behaviors was rated by five expert judges independently, using a five-point scale from "not affective" to "most affective." The 19 items on which 80 per cent agreement was obtained were used in the final scale:

OVERT BEHAVIOR MANIFESTATION SCALE OF AFFECT

- | | |
|-----------------|--|
| <i>Scored 1</i> | <ul style="list-style-type: none"> • Taking a cigarette Scratching body or head Tapping unlit cigarette on table |
| <i>Scored 2</i> | <ul style="list-style-type: none"> Fussing with clothes, plucking sleeve • Ear pulling • Fussing with chair |
| <i>Scored 3</i> | <ul style="list-style-type: none"> • Blocking Whistling Fidgetting (frequent change in position) Twitch or tic |

- ** Rejecting card
- Foot tapping
- Rigid posture
- Scored 4 Jumping up
- Throwing or slamming card
- * Tears
- Shutting lids tight
- Pacing
- Fists clenched

** This was not included in final rating.

* 100% rater agreement.

RESULTS

Rejections, which were included in the overt behavior scale, were evaluated separately, since they were the largest single factor contributing to the overt behavior score and therefore merited closer scrutiny.

The mean scores for each group under both conditions of stimulus strength of color are shown in Table I. The higher the FD score, the better the form definiteness of the percept. The Analysis of Variance of the FD scores showed two main effects — stimulus strength of color and autism. The FD of the percepts in response to high stimulus strength color cards was lower than to low stimulus strength color cards at a greater than .01 level of confidence. The FD of the percepts given by high autistic Ss to all cards was lower than that given by low autistic Ss at greater than the .01 level of confidence. The difference in the FD scores obtained by high and low autistic Ss in response to low stimulus strength color cards was not significant with a $t = .378$ on a t test.

The results of the Analysis of Variance of the AA scores also showed two main effects — stimulus strength of color and autism. In addition, there

was an interaction effect. High stimulus color cards evoke a higher affect arousal score than did low stimulus strength color cards at greater than the .01 level of confidence. High autistic Ss scored higher in AA on all cards than did low autistic Ss at greater than the .05 level of confidence. The interaction effect indicates that there is a greater change which takes place for high autistic Ss going from low to high stimulus strength color cards than for low autistic Ss, at a greater than .05 level of confidence. An examination of the simple effects of this interaction showed no significant difference between autistic groups on low stimulus strength color cards. Scores from the OB scale showed that high stimulus strength color cards evoked more manifest behavior than did low stimulus strength cards at the .01 level of confidence using a Sign Test. High autistic subjects expressed more overt behavior than did low autistic Ss in dealing with all cards at a significance level greater than .0190 on a t test. There was also an interaction effect with high autistic Ss, showing more change going from low to high stimulus strength color cards than low autistic Ss. A t of 2.22 was significant at the .025 level of confidence using the criteria of a one-tail test. There was no difference in the overt behavior expressed under low stimulus strength of color. The mean score for OB of the high autistic group was .03 and for the low autistic group was .01.

There were more rejections of high stimulus strength color cards by both groups than of low stimulus strength color cards at greater than the .0001

TABLE I—Mean Scores Obtained Under High and Low Stimulus Strength of Color

| Subjects | FD Color Strength | | AA Color Strength | | OB Color Strength | | Rejections Color Strength | |
|------------------|-------------------------|------|-------------------------|-----|-------------------------|-----|---------------------------------|-----|
| | High | Low | High | Low | High | Low | High | Low |
| High Autistic | M-10.3 | 18.1 | 6.9 | 1.7 | 5.2 | .3 | 1.6 | .3 |
| Low Autistic | M-15.5 | 21 | 3.7 | .7 | 2 | .1 | 1 | .07 |

level of confidence using a Sign Test. High autistic Ss had more rejections than low autistic Ss at greater than the .02 level of confidence on a Sign Test using the criteria of a one-tail test. High autistic Ss also rejected high stimulus strength color cards more often than did low autistic Ss at greater than the .005 level of confidence using the Fisher's Exact Probability Test. A Chi Square test of the number of low stimulus strength cards rejected by high and low autistic Ss showed that there was no significant difference between the groups with a $X^2 = 1.06$.

In order to establish a measure of scorer reliability, six HIT protocols were selected at random and were independently scored by two psychologists who have been actively involved in research with this test. The total scores for FD, AA, and OB were separated for high and low stimulus strength cards. Six correlations were computed among the three raters using the Spearman's Rank-Difference Correlation Method. The range of correlations for the three variables on cards of high stimulus strength of color was from .715 to 1.00. The range of correlations on cards of low stimulus strength of color was from .843 to 1.00. These correlations are considered satisfactory.

DISCUSSION

The hypothesis, that the degree of affect expressed in response to color is a function of the stimulus strength of the color and the degree of autism of the perceiver, was confirmed.

The responses by all Ss to cards of high stimulus strength reflected greater affect arousal than did responses to cards of low stimulus strength. This was indicated by (a) significantly lower scores on the FD scale, (b) a greater number of cards rejected, and (c) a higher score on the AA and OB scales. The effect of autism was also significant. High autistic Ss expressed more affect in response to all cards than did low autistic

Ss. This was reflected in (a) lower scores on the FD scale, (b) more cards rejected, and (c) a higher score on the AA and OB scales.

The interaction effect between autism and stimulus strength, although not predicted, was calculated and found to be significant. There was a significant interaction with reference to the AA and OB scores and the number of rejections. Scores on the FD scale missed an acceptable significance level for the interaction effect, which may be attributable to the small N; but they were in a direction consistent with the other scores. This interaction indicates that high autistic Ss show a greater increase in the degree of affect expressed in response to high stimulus strength cards, as compared with low stimulus strength cards, than do low autistic Ss.

As predicted, there was no significant difference between high and low autistic Ss in their responses to low stimulus strength cards. It appears evident that colors of low stimulus strength have little effect on arousal of affect and emotionality when compared with colors of high stimulus strength.

The Ss who scored high on the autism scale responded to high stimulus strength in a global and diffuse manner, reflecting a primary process type of thinking. This was consistent with descriptions given of behavior of autistic persons by Bleuler (1950), Bellak (1959), and Goldman (1962). When the stimulus strength was low, however, there was no significant difference between affect expressed by high autistic Ss and that expressed by low autistic Ss. The Ss who scored low on the autism scale also responded in a more global and diffuse manner to high stimulus strength of color but to a significantly smaller degree than did the high autistic Ss.

The results suggest that there are degrees of autism. Stimuli of various strengths will evoke autistic responses of varying intensity depending on the

degree of autism of the perceiver.

Theories on Color

Schachtel (1943), Goldstein (1942), and Drechsler's (1960) all-or-none theories in assessing passivity to the perceiver in experiencing color, i.e., responses to color reflect affect and emotionality, need modification to interpret adequately the results of this study. Norman and Scott (1952) and The Committee on Colorimetry's (1953) theories of color evoking a response reflecting a cognitive process seem to be equally one-sided and therefore are also inadequate to explain the results obtained. Those who espouse the purely affective and those who espouse the purely cognitive explanations neglect two primary variables in the response to color. The one, and most important, is the strength of the stimulus, and the other, the personality differences of the perceiver. Personality differences have been given consideration by Piotrowski (1957), Werner (1949), and Woods (1954); but the role of the complex nature of the stimulus has been ignored. Witkin et al. (1954) included as contributors to responses both the personality of the perceiver and the structure of the field but did not address themselves to the variation in the affective properties of the field. The results of this study would indicate that a more workable theory would be based on variation in the stimulating properties of the color and the personality differences of the perceiver.

Projective Techniques

The results obtained in this study may also be generalized to other projective techniques than the HIT. It appears that in the interpretation of color responses to inkblots, the stimulus strength of color should be considered. Responses to blots with weak color do not reflect affect and emotionality as has been assumed, and their inclusion with responses to high stimulus color cards makes a prediction concerning affect less valid. It

would be preferable to examine separately responses to high stimulus color cards and low stimulus color cards. However, further study on specific techniques is necessary before definite recommendations can be made for a particular test.

SUMMARY

High autistic and low autistic schizophrenic Ss were tested in a situation in which the stimulus strength of color was varied. It was predicted that responses to conditions of high stimulus strength would reflect greater affect than conditions of low stimulus strength for all Ss. Further, it was predicted that high autistic Ss would express significantly greater affect than low autistic Ss in response to conditions of high stimulus strength. It was also predicted that there would be no significant differences between Ss under conditions of low stimulus strength of color.

There were 30 Ss, 15 in each group. The independent variables were degree of stimulus strength of color and degree of autism of the Ss. The dependent variable was degree of affect expressed, as measured by the Holtzman Inkblot Test. Twenty selected HIT cards, ten with high stimulus strength and ten with low stimulus strength, were administered. Results show a significant effect of the color. High stimulus strength of color in a stimulus pattern evoked responses with greater affect than low stimulus strength color. The effect of autism was also significant — high autistic Ss responded with greater affect than low autistic Ss. When the stimulus strength of the color was low, there was no significant difference in the responses of either group. In most of the measures used, there was an interaction effect. The high autistic Ss increased more rapidly in expression of affect on the HIT toward high stimulus strength cards, as compared with low stimulus strength cards, than the low autistic Ss.

It may be stated that when the

presence of color in a stimulus field evokes affective responses and interferes with cognition, it is a function of high stimulus strength of the color. Responses to high stimulus strength of color are able to discriminate high autistic from low autistic schizophrenics on the basis of greater expression of affect.

Sensory stimuli are of various degrees of intensity and take many forms. While this study utilized color, which is a visual stimulant, the effect observed as a function of the strength of the color can be generalized to other modes of sensory input. Aural stimulation by music or noise, physical stimulation by pain or caress, olfactory stimulation by odors, kinesthetic sensations by inner tensions, etc., are all subject to the strength of the stimulus. People are generally able to deal with weak sensory stimuli displaying no arousal of affect and utilizing cognitive processes available to them. When the strength of a stimulus is increased, the response will vary depending on the personality of the recipient. Most people will reflect greater arousal of affect. Some, however, will be able to inhibit this arousal of affect and maintain the behavior appropriate to the demands of the environmental situation. Others will express a great amount of affect, verbal and/or behavioral, and will not be able to attend effectively to the situational demands.

REFERENCES

- Bellak, L. *The schizophrenic syndrome*. New York: Loges Press, 1959.
- Bleuler, E. *Dementia Praecox*. New York: International Universities Press, 1950.
- Cattell, R. B. Principles of design in projective or misperceptive tests of personality. In Anderson and Anderson (Ed.), *An introduction to projective techniques*. New York: Prentice-Hall, 1951, 55-98.
- Cattell, R. B. *Personality and motivation structure and measurement*. Yonkers-on-Hudson, New York: World Book, 1957.
- Committee on Colorimetry. *The science of color*. New York: Thomas Y. Crowell, 1953.
- Drechsler, R. J. Affect stimulating effects of colors. *J. abnorm. psychol.*, 1960, 61, 323-328.
- Goldman, A. E. A comparative development approach to schizophrenia. *Psychol. Bull.*, 1962, 59, 57-69.
- Goldstein, K. Some experimental observations concerning the influence of color on the functions of the organism. *Occup. Therapy Rehabil.*, 1942, 21, 147-151.
- Hebb, D. O. *A textbook of psychology*. Philadelphia: W. B. Saunders Co., 1958.
- Hill, Evelyn F. Schizophrenics combination of color and form. Unpublished masters thesis. The Catholic University of America, 1962.
- Holtzman, W. H. *Holtzman inkblot technique*. New York: The Psychol. Corp., 1958-1961.
- Holtzman, W. H., Thorpe, J. S., Swartz, J. D., & Herran, E. W. *Inkblot perception and personality*. Texas: University of Texas Press, 1961.
- Norman, R. D. & Scott, W. A. Color and affect. *J. gen. psychol.*, 1952, 46, 185-225.
- Piotrowski, Z. A. *Perceptanalysis*. New York: McMillan, 1957.
- Schachtel, E. G. On color and affect. *Psychiat.*, 1943, 6, 393-409.
- Werner, S. J. The color preferences of psychiatric groups. *Psychol. Monogr.*, 1949, 63, (6), 969.
- Witkin, H. A., Lewis, H. B., Hertzman, M., Machover, K., Meissner, P. B., & Wapner, S. *Personality through perception*. New York: Harper, 1954.
- Woods, W. A. *Personality through color. Mental Health in Va.*, 1954.
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Received April 9, 1965

Revision received July 26, 1965

A Tachistoscopic Index of Body Perception I Body Boundary and Body Interior Awareness^{1, 2}

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Summary: Fisher and Cleveland originally proposed that individuals differ in exterior-interior body awareness. A study was conducted in a population of 61 men and 48 women to examine this hypothesis. Tachistoscopic recognition times for picture categories depicting the exterior and interior (E and I) body sectors were ascertained. A chi square analysis revealed that these recognition times were significantly related ($P = 0.01$) to Rorschach measures reflecting E-I awareness. An additional finding was that men recognized the I category more rapidly. This was considered to provide further support for the hypothesis that men have accentuated I awareness. An outline was given of ongoing work designed to measure the extent of the tachistoscope's regional specificity.

An individual's awareness encompasses a fluid field of shifting percepts. An important sector of this field focuses on the space demarcated by the human body. Each individual has an idiosyncratic hierarchical pattern of awareness for the component segments of this body space. This pattern has been described as an individual's body image. It has been explored in a series of investigations by Fisher and Cleveland (1958). These workers have proposed that individuals differ in the degree of definiteness or articulation which they ascribe to the boundaries of their bodies. They hypothesized that at one extreme existed an individual whose boundaries were clear and prominent and whose body awareness concentrated on the boundary layers of his body. At the other extreme they conceptualized an individual who has difficulty in delineating his boundaries and whose body awareness concentrated on the body interior. The present study examines this hypothesis by means of a tachistoscopic index of regional body awareness.

Fisher and Cleveland (1958) originally developed a projective index

called the barrier score. This was considered to represent a direct measure of body boundary awareness and an inverse measure of body interior awareness. It was derived by quantifying ink blot responses in which there was an emphasis placed on the protective, covering, containing or decorative function of the periphery of percepts. Some examples follow: man in armor, person in elaborate costume, mummy wrapped up, flowers in a vase, turtle with a shell. The greater the barrier score, the more the individual is considered to have accentuated body boundary awareness. The less the barrier score, the more an individual is considered to have accentuated body interior awareness.

There are a few previous investigations which have directly examined the validity of the barrier score. It has been shown that high barrier as compared to low barrier individuals give more human percepts (Fisher and Cleveland, 1958) and fewer body interior percepts in the Rorschach (Cassell, 1964). It has been demonstrated that high barrier subjects give body associations which indicate that they exceed low barrier subjects in the degree to which their awareness for the body boundary region (skin and muscle) exceeds their awareness for the body interior (stomach and heart), (Fisher and Fisher, 1964). It

¹I wish to thank Dr. Seymour Fisher and Dr. Edward Engel for their many contributions to the preparation of this paper.

²This study was supported in part by Grant MH 08302-02 from the National Institute of Mental Health, U.S.P.H.S. and Grant GP 1137 National Science Foundation.

also has been shown that normal subjects given placebo medication experience more symptoms in the boundary layers of the body as a direct function of their barrier score (Fisher and Fisher, 1963).

The present investigation proposes to supplement this series. A tachistoscopic technique was chosen because it offered high regional specificity. It was assumed that accentuated awareness for a body segment would be reflected in rapid recognition of a visual image specific to that area. This assumption is consistent with studies which indicate that familiarity with a word or concept facilitates its tachistoscopic recognition (Kristofferson, 1951; Solomon and Howes, 1951; Postman and Schneider, 1951). With respect to the regions in question, it was anticipated that boundary and interior awareness would be associated with rapid recognition of visual images representative of external and internal body segments.

Before the study was initiated, a problem was anticipated in measuring body exterior awareness. This pertained to the anticipation that intact human figures or humanoid aspects of the body exterior such as the face would be recognized on the basis of their human content as "people". In order to resolve this problem, two body exterior photographic series were conceptualized. The first was to consist of photographs, in which recognition of human content was considered to reflect exterior body awareness. The second series was to consist of photographs, in which recognition of external anatomy reflected exterior awareness. With these considerations in mind the following hypothesis was established: Individuals whose body awareness concentrates on the boundary (high barrier subjects) as compared to individuals whose body awareness concentrates least on the boundary (low barrier subjects), will recognize at lower exposure times, tachistoscopically presented photographs of the body ex-

terior as defined by 1) recognition of human content, 2) recognition of isolated, non-humanoid, exterior body segments.

For recognition of internal body segments a second prediction was made which was stated as follows: Individuals whose body awareness concentrates on the interior as compared to individuals whose awareness concentrates least on the interior, will recognize at lower exposure times tachistoscopically presented illustrations of internal organs. In this instance it was decided to classify subjects as having high internal awareness as compared to low internal awareness on the basis of two separate criteria. The first was to be made on the basis of low barrier as compared to high barrier scores. This was proposed partly to substantiate the first hypothesis by demonstrating that high barrier subjects did not have a generalized facility in tachistoscopic recognition of body themes. The second comparison was to be made by deriving for each subject a score based upon his barrier minus body interior awareness index (Cassell, 1965). In this regard the experimental design proposed to classify subjects as having accentuated internal awareness on the basis of low barrier minus body interior awareness scores. It was expected that these individuals would have faster recognition of internal organs than subjects with high barrier minus body interior awareness scores.

METHOD

Young adult college students were used as subjects. These were obtained by offering them a fee to participate in a perception study. A total population of 104, consisting of 61 men and 43 women were obtained.

The Rorschach was administered to these subjects on a group basis with 4 to 8 participants per session. In a manner consistent with former studies to control for response total, it was asked that three responses be given for five of the blots (1, 2, 3, 8, 10) and two

for the other five blots. The barrier score and barrier minus body interior awareness score was obtained for each protocol.

For the tachistoscopic portion of the procedure, a viewing distance of 22 inches was used to present $2\frac{1}{2} \times 3\frac{1}{2}$ inch pictures. Two photographic series depicting the body exterior were utilized to examine the first hypothesis. The first consisted of fifteen pictures whose central theme depicted human life. This series consisted of the following: man's face, mother and child, man standing, children sitting, man seated, woman standing, woman at desk, girl in school, man seated, woman standing, woman at desk, girl swimming, woman profile standing, woman sitting on bench, man walking, two men standing, two babies in a crib, crowd of people and baby on a blanket. The second body exterior series consisted of thirteen photographs of isolated non-humanoid segments of the body exterior. This series consisted of the following: forehead, eye, ear, nose (2 views), lips (2 views), neck, hand, finger, back and foot (2 views).

In order to test the second hypothesis a series of photographs depicting internal organs were assembled. These were obtained by photographing illustrations of specific organs which were present in medical textbooks. The following seven internal organ photographs were obtained: heart, stomach, lungs, chest x-ray, intestine, kidney and brain. In this study recognition of the body interior in a photograph irrespective of its organ accuracy was used to define internal awareness. Thus, if a subject reported that a photograph reminded him of the "body interior" this was considered recognition.

Prior to tachistoscopic presentation, the principles of the test were briefly explained to a subject. Each was told that a series of pictures were to be shown at brief exposure times. Each was instructed to say whatever came to mind after each tachistoscopic ex-

posure. He then was introduced to the procedure by giving him three test examples utilizing the numbers 1, 2, and 3 for visual recognition. Following this the three series of body photographs plus a series of 54 filler cards were presented in random order. The filler cards consisted mainly of everyday common objects (e.g., hat, shoes, dog, trees). These were included in order to prevent a subject from readily developing a perceptual set for anatomical photographs.

All photographs were initially presented at 0.01 seconds, as defined by a Gerbrand's mechanical timer. Cards which were recognized were dropped from the series and the procedure was repeated at an exposure time of 0.02 seconds. This was done for 0.03, 0.04, and 0.05 seconds as well. In the extreme case if a photograph was not recognized at 0.05 seconds, a score of 0.06 was entered for it in the group series. This end point was used rather than the actual recognition time in order to define a manageable index for a particular photograph series. Preliminary trials had shown that if a photograph was not recognized after five presentations, it frequently required a relatively prolonged exposure time for recognition. It was anticipated that one such card would dramatically alter the category index, since the index was defined numerically by the summation of all the recognition times for individual cards in the series.

RESULTS

The relationship between the barrier score and the tachistoscopic indices of body exterior awareness was examined by dividing subjects into two groups. The first consisted of individuals considered to have accentuated boundary awareness on the basis of barrier scores in excess of the median 6 (high barrier). The second group consisted of individuals whose barrier score was equal to or less than the median of 6 (low barrier). It was found that high barrier subjects recognized at lower exposure times

photographs depicting the exterior as defined by (1) human awareness ($X^2 = 8.68$ $P = 0.001$), (2) awareness for anatomical external segments of the body ($X^2 = 5.51$ $P = 0.01$).

The relationships between the Rorschach measures of interior awareness and tachistoscopic recognition of internal organs were compared separately in the two sexes. This was done because men recognized the internal organ series more rapidly than women. For the men the median recognition time was 0.21 with a range 0.13 to 0.38. For the women the median recognition time was 0.27 with a range of 0.21 to 0.40. A chi square analysis revealed this sex difference to be statistically significant ($X^2 = 15.02$ $P = 0.001$).

In order to compensate for the smaller groups the comparison was done on individuals with extreme barrier and barrier minus body interior awareness indices by eliminating subjects who fell at each of the medians. Thus, subjects were considered to have high internal awareness if their barrier scores were 5 or less and low internal awareness if their barrier scores were 7 or more. In the data obtained from the men, a significant relationship was found between internal awareness and rapid recognition of internal organs ($X^2 = 4.58$ $P = 0.025$). In the women, the difference

between the groups did not reach a significant level ($X^2 = 0.70$ $P = 0.40$). For the second comparison, subjects were considered to have high internal awareness if their barrier minus body interior awareness indices were 2 or less and low internal awareness if their barrier minus body interior awareness indices were 4 or more. When these groups were compared, a significant relationship between internal awareness and rapid recognition of internal organs was found in men ($X^2 = 6.03$ $P = 0.01$). In women a numerical difference was observed approaching significance ($X^2 = 2.51$ $P = 0.10$). These overall data are summarized in Table I.

DISCUSSION

The results provide further validation of Fisher and Cleveland's hypothesis that individuals differ in exterior-interior body awareness. Two photographic series representing the body exterior were recognized more rapidly by subjects whose Rorschach percepts indicated that they had accentuated body boundary awareness. The first series consisted of photographs whose recognition time was defined by awareness of human content in the tachistoscopic stimuli. These depicted either the entire human body or a humanoid portion of the body exterior such as the face. The

TABLE I—Body Awareness and Body Recognition

| | | I. Exterior Images | | | |
|----------------------|--|---------------------|----|--------------|---------|
| | | Humanoid | | Anatomy | |
| Exterior Recognition | | HB | LB | HB | LB |
| Rapid | | 32 | 20 | 30 | 21 |
| Slow | | 17 | 35 | 19 | 24 |
| | | $X^2 = 8.68$ | | $X^2 = 5.51$ | |
| | | $P = 0.001$ | | $P = 0.01$ | |
| | | II. Interior Images | | | |
| | | Men | | Women | |
| Interior Recognition | | HB | LB | Men | Women |
| | | | | H (B-I) | L (B-I) |
| Rapid | | 11 | 15 | 10 | 17 |
| Slow | | 18 | 7 | 19 | 8 |
| | | $X^2 = 4.58$ | | $X^2 = 6.03$ | |
| | | $P = 0.025$ | | $P = 0.01$ | |

H = High

L = Low

B = Barrier

(B-I) = Barrier - Body Interior Awareness Index

second series consisted of isolated segments of the body exterior whose recognition time was defined by awareness for the anatomical part photographed. The third tachistoscopic series of photographs depicting the body interior was recognized more rapidly by subjects whose Rorschach responses indicated they had accentuated interior body awareness. The validity of these relationships was highlighted by the fact that there was a reversal in recognition related to the content of the photographs. The individuals who recognized the exterior of the body more quickly actually took longer to recognize the body interior.

At this time attention will be focused upon the processes which account for these relationships. Essentially, it was found that an individual's ability to recognize tachistoscopically exposed photographs was related to the images he ascribed to ink blot stimuli. This relationship is consistent with the similarity between the two perceptual processes and their common body awareness determinants. Their similarity becomes apparent by examining the content of an individual's visual field during both perceptual tasks. The tachistoscopic procedure involves viewing a briefly exposed representation of a body segment. In this perceptual situation an image of the segment appears to float into the visual sphere and then rapidly disappears. At liminal exposure times, only a trace of the image is left in mind. This presents minimal clues regarding the spatial qualities and content of the object being depicted. Its vagueness is analogous to a temporally constant but structurally indefinite ink blot configuration. Thus, both perceptual tasks require the creation of visual fantasies in relation to a stimulus that has minimal structure. As each individual monitors this stimulus, his awareness is being impinged upon by idiosyncratic exterior-interior body percepts. These will influence his perceptual set in both

procedures. Thus, comparable body images are ascribed to the ink blot and tachistoscopic stimuli.

An additional finding was that men as compared to women, more rapidly recognized the body interior series of photographs. This finding is consistent with the hypothesis that men have accentuated awareness for the body interior. This was originally proposed when it was observed that men had higher body interior awareness indices than women (Cassell, 1964). This sex difference is also consistent with Ames' review of Rorschach percepts in children. She found that boys project more themes depicting sex organs, elimination parts, blood and mutilation. In a general way it is consistent with Fisher's recent finding (Fisher, 1964) that men define body awareness in terms of gastrointestinal percepts in contrast to women, who use the body boundary as a point of body reference. The parallel between the accentuated internal awareness in men and their diathesis to develop internal disease (e.g., peptic ulcer) has been previously noted (Cassell, 1964). Of course the sex difference in tachistoscopic recognition of internal organs may have been determined by a failure of the female group to report seeing these images because of their socially unacceptable quality. This possibility must be considered in view of the number of studies which indicate that tachistoscopic recognition of taboo words is delayed (Banks, 1959; Walters, 1959; Zigler, 1960).

As well as being a validation study, the present investigation serves to introduce a tachistoscopic index of regional body awareness. This is a particularly attractive body perceptual measure. It promises to afford high regional specificity without requiring instructions which focus a subject's attention on his body. Future work will concern the question of how specific are the individual photographs in the exterior and interior series.

Experiments will be conducted to

ascertain whether heart and stomach photographs are recognized differentially on the basis of heart and stomach awareness, aside from their common relationship to the body interior. This problem will be investigated in subjects selected for accentuated cardiac and stomach awareness on the basis of other criteria than existing body perceptual measures. One will involve selecting individuals with various degrees of symptomatic concern for these areas. The other will involve selecting individuals with heightened sensory awareness for these regions secondary to increased organ reactivity (e.g., accentuated heart rate, stomach contractions). These plans provide guidelines for exploring the tachistoscope's potential as a measure of body perception.

REFERENCES

- Ames, L. B. *Child Rorschach responses*. New York: Harper & Brothers, Paul B. Hoeber, Inc., 1952.
- Banks, R. K. & Walters, R. H. Prior reinforcement as a determinant of recognition thresholds. *Percept. Motor Skills*, 1959, 9, 51-54.
- Cassell, W. A. A projective index of body-interior awareness. *Psychosomatic Medicine*, 1964, 26, 172-177.
- Cassell, W. A. & Fisher, S. Body boundary and histamine flare response. *Psychosomatic Medicine*, 1963, 25, 4.
- Cassell, W. A. Body perception and symptom localization. *Psychosomatic Medicine*, 1965, 27, 2.
- Fisher, S. & Cleveland, S. E. *Body image and personality*. Princeton, New Jersey: Van Nostrand, 1958.
- Fisher, S. & Fisher, R. Body image boundaries and patterns of body perception. *J. abnorm. and soc. Psycho.*, 1964, 68, 255-262.
- Fisher, S. & Fisher, R. Placebo response and acquiescence. *Psychopharmacologia*, 1963, 4, 298.
- Fisher, S. Sex differences in body perception. *Psychological monographs*, 1964, 78, 14.
- Kristofferson, A. B. Word recognition, meaningfulness and familiarity. *Percept. motor skills*, 1951, 7, 219-220.
- Postman, L. & Schneider, B. H. Personal values, visual recognition and recall. *Psychol. Rev.*, 1951, 58, 271-284.
- Solomon, R. L. & Howes, D. H. Word frequency, personal values and visual duration thresholds. *Psychol. Rev.*, 1951, 58, 256-270.
- Walters, R. H., Banks, R. K. & Ryder, R. R. A test of the perceptual defense hypothesis. *J. Pers.*, 1959, 27, 47-55.
- Zigler, E. & Yospe, L. Perceptual defense and the problem of response suppression. *J. Pers.*, 1960, 28, 220-239.
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Received April 14, 1965

Revision received September 4, 1965

Computer Analysis of Sentence Completions

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Summary: Sentence completions of two groups of high school students distinguished by a sociometric instrument as Liked or Disliked were submitted to the General Inquirer computer system for retrieval and content analysis of verbal text.

The General Inquirer analyzed the sentence completions by tagging the text with categories based on psychosociological theories. Frequency counts for each category indicate systematic differences in the strength and direction of the verbal text of Liked and Disliked students.

Inferences drawn about the personalities of Liked and Disliked students on the basis of the psychosociological theories in the dictionary seem reasonable in terms of the sociometric ratings.

The General Inquirer may have good potential as an objective method of scoring sentence completions particularly with an expanded text and a dictionary containing theories directly pertinent to the theory underlying a set of sentence completions. Further research on sentence completions using the General Inquirer seems warranted.

The sentence completion test is a projective technique for personality assessment. Because of the speed with which it can be administered, scored and analyzed, it is quite useful as a screening and experimental device.

The sentence completion test is extremely flexible. Thus, it has been used to study family relationships (Lehner, 1947), sex differences (Kline, 1948), school life and achievement (Costin & Eiserer, 1949), social attitudes (Campbell, 1950), and was extensively used by the Office of Strategic Services during World War II to screen military personnel (OSS Assessment Staff, 1948).

Several methods for analyzing sentence completion tests have been proposed. Sanford (1943) devised a test for clinical purposes using the Murray (1938) need-press scheme for describing personality. Rohde (1957) who made an intensive study of the use of sentence completions as an experimental tool as well as a method for clinical diagnosis standardized the clinical interpretations of her test and found high reliability coefficients.

Stein (1947) who had helped de-

velop the OSS version of the sentence completion test adapted it for civilian use. Scoring is objective in both the military and civilian versions. Although Stein was careful to give aids for the clinical evaluation of the test and the OSS reported that it was a highly successful instrument when used to confirm later interviews, Symonds (1947) disputed its value as a clinical instrument.

Rotter & Willerman (1947), looking for a screening test which could be scored by a relatively untrained person, worked out a category system by which each sentence response could be placed on a numerical scale. This simple, objective method yielded high inter-scorer reliability (.68) but the reliability against the criterion of clinical diagnosis was low (.39).

Confronted, then, with a number of techniques for scoring sentence completions, most of which are applicable either to specific sets of sentences or require extensive clinical training, the writer decided to determine whether sentence completions can be meaningfully analyzed by a highly developed computer system.

The Computer System

The General Inquirer (Stone, Bales,

¹ This investigation was conducted while the author was a doctoral candidate at Harvard University.

Namenwirth & Ogilvie, (1962) is a computer system designed for content analysis and retrieval of written verbal text using the sentence as the unit of information. The General Inquirer attempts to analyze non-numerical verbal text with the exactness of numerical procedures. According to Stone, *et al.*, (1962), "As a practical tool, the General Inquirer has not been intended as an automatic data processor that will somehow completely simulate or otherwise substitute for the inspections, analyses, and insights of the investigator; instead, our goal has been to develop a system that will aid the investigator in organizing his procedures and making them explicit."

There are a number of advantages to using an automatic data processor such as the General Inquirer. First, procedures using the system can be repeated by other investigators using other data. Second, automatic processing permits the investigator to analyze much more data than would otherwise be possible. Third, the flexibility of the system permits the investigator to continually reformulate questions in order to probe the data from many vantage points.²

One of the most important aspects of the General Inquirer system is its dictionary procedure. The General Inquirer dictionary tags the text words with special words which represent appropriate concepts from a list of appropriate variables or "tags." The tag words define or categorize every word in the set of dictionary entries consisting of the most frequently used words in the English language. These words were taken from the Thorndike-Lorge dictionary (Thorndike & Lorge, 1944). In addition, words of interest to behavioral scientists are included. The total number of words in the "third" dictionary used in this study is about 3500.

Since the dictionary entry often con-

sists of a root to which many suffix forms can be added, there are probably more than 10,000 words which can be identified. McPherson, Dunphy, Bales, Stone & Ogilvie, (1963) state that between 92% and 98% of the words in text examined, excluding proper names, have been covered.

The "first" dictionary used in the General Inquirer was developed to enable investigators to make content analyses of group discussions with the aim of discovering and tracing psychological themes (Stone, *et al.*, 1962). Subsequent dictionaries have been used to analyze suicide notes, Peace Corps reports, and transcripts of psychotherapy sessions. Stone (1962) utilized the General Inquirer to analyze the diaries of a case of multiple personality.

The original list of tag concepts to define entries in the "first" dictionary was developed inductively in an *ad hoc* fashion. Various psychosociological theories were represented by the tags, e.g., Lewinian field theory (Deutsch, 1954), role theory (Parsons & Bales, 1955), Leary's (1957) categories of interpersonal relations, and psychoanalytic theory concerning defense mechanisms. Thus, there were 164 variables, a number which proved unwieldy.

The "third" dictionary used in this study rests on a more explicit scheme. Although the psychosociological concepts of the "first" dictionary are retained, not all of the major theoretical concepts in the social sciences are represented.³

In the "third" dictionary developed by McPherson, *et al.*, (1963) the dictionary tag categories are divided into two lists: "First Order" tags and "Second Order" tags. The 55 First Order tags represent the usual and explicit meaning of the word in standard usage. They are discrete, independent

² Questioning procedures were not utilized in this investigation.

³ Since a dictionary can represent an investigator's theory, dictionaries may vary, e.g., a dictionary for analyzing anthropological folk tales has been developed.

variables; only one of which may be used to categorize a particular dictionary entry. The 28 Second Order tags

represent an estimate of the "significant connotative and implicit meanings which the word will evoke in cer-

TABLE I—"Third" Psychosociological Dictionary

FIRST ORDER TAGS

*Quadrant I**Persons*

- self—all pronoun references to the personal self (I, me, mine, myself).
- selves—all pronoun references to the inclusive self (we, us, ours, etc.)
- other—all non-sex-specific pronouns for other (you, yours, they, theirs, etc.)
- male-role—all roles with specific male references.
- female-role—all roles with specific female references.
- neuter-role—all role names not connoting sex or occupations.
- job-role—all roles with clear occupational reference, theoretically open to both sexes.

Groups

- small-group—groups usually able to have face to face interaction.
- large-group—collectivities usually too large for face to face interaction.

Physical Objects

- bodypart—parts of the body.
- food—articles or types of food.
- clothing—articles or types of clothing.
- tool—instrumental objects or artifacts of any kind (broader category than hand tools).
- natural-object—objects not made by man (plants, animals, and minerals).
- non-specif-obj—abstract references to objects (connoting intellectualization).

Physical Qualifiers

- sensory-ref—smells, colors, tastes, etc.
- time-ref—references to measurement of time.
- space-ref—references to spatial dimensions.
- quantity-ref—references to units and measures of quantity.

Environments

- social-place—buildings and building parts; political, social, and economic locations.
- natural-world—geographical places, weather references and cosmic objects.

Culture

- ideal-value — culturally defined virtues, goals, valued conditions and activities.
- deviation—culturally devalued goals, conditions and types of activity.

action-norm—normative patterns of social behavior.

message-form—names of communication media in a very broad sense, including art objects and money.

thought-form—units and styles of reasoning.

*Quadrant II**Emotions*

- arousal—states of emotional excitement.
- urge—drive states.
- affection—indicators of close, positive, interpersonal relationships.
- pleasure—states of gratification.
- distress—states of despair, fear, guilt, shame, grief, failure, or indecision.
- anger—forms of aggressive expression.

Thought

- sense—perception and awareness.
- think—cognitive processes.
- if—conditional words.
- equal—words denoting similarity.
- not—words denoting negation.
- cause—words denoting a cause-effect relation.
- defense-mechanism—standard psychological terms for defense mechanisms.

Evaluation

- good—synonyms for good.
- bad—synonyms for bad.
- ought—words indicating a moral imperative.

Social-Emotional Actions

- communicate—processes of transmission of meaning.
- approach—movement toward.
- guide—assistance and positive direction.
- control—limiting action.
- attack—destructive, hostile action.
- avoid—movement away from.
- follow—submissive action.

Impersonal Actions

- attempt—goal-directed activity, implying effort.
- work—task activity.
- get—obtaining, achieving action.
- possess—owning, consuming.
- expel—ejecting.

SECOND ORDER TAGS

Quadrant III

Institutional Contexts—specification of the social context of roles and actions.

academic
artistic
community
economic
family
legal
medical
military
political
recreational
religious
technological

Status Connotations—male-, female-, neuter-, and job-role status implications.

higher-status
peer-status
lower-status

Quadrant IV

Psychological Themes

overstate—emphatic or exaggerative words, generally adjectives or adverbs (connotes a defensive style).

tain contexts." (McPherson, *et al.*, 1963). Thus, Second Order tags are not independent variables since the meaning of a dictionary entry word "may be filled out by using as many Second Order tags as appear necessary to give a satisfactory definition." (McPherson, *et al.*, 1963).

The "third" psychosociological dictionary developed by McPherson, *et al.*, (1963) appears in Table I.

The First and Second Order tags form two columns. The left hand columns refer to sociocultural themes, e.g., roles, values, institutions, which are represented by the tags listed under headings such as persons, groups, culture. The right hand columns list psychological processes and themes, e.g., emotion, cognition, interpersonal behavior, which are represented by the tags listed under headings such as emotions, thought, evaluation. In addition, if one looks at Quadrant I, a further distinction is made in that these sociocultural objects are defined in sociological terms. Contrastingly,

understate—words, generally adjectives or adverbs, connoting doubt or uncertainty (connotes a defensive style).

sign-strong—words connoting strength or capacity for action.

sign-weak—words connoting weakness or incapacity for action.

sign-accept—words implying interpersonal acceptance.

sign-reject—words implying interpersonal rejection.

male-theme—psychoanalytic symbols of masculinity.

female-theme—psychoanalytic symbols of femininity.

sex-theme—direct or indirect references to the sex act.

ascend-theme—words associated with rising, falling, fire, and water, indicating concerns related to the Icarus complex.

authority-theme—words connoting the existence or exercise of authority.

danger-theme—words connoting alarm or concern with danger.

death-theme—words connoting dying, end.

the First Order tags in Quadrant II represent basic psychological processes. The sociocultural Second Order tags in Quadrant III refer to the social structure of society, i.e., to institutional and status divisions, while the Second Order tags in Quadrant IV refer to underlying psychological motivations of personality. Thus, combining the two columns with the distinction between First and Second Order tags yield four areas in the dictionary. In general, tags are arranged in a progression from the more personal to the more impersonal.

A second aspect of the General Inquirer is its retrieval operation. Since tags represent theoretical variables, the differences in frequency with which each tag is used between texts is of great importance. The "Tag Tally" program examines the text after it has been tagged and counts how many times each tag word is used.

The complete empirical definition of a tag can be found by examining

the list of entry words defined by the tag which heads it. For example, the entry words, "I," "Me," "Myself," are listed under the tag "Self."

In order to determine if the General Inquirer could analyze the limited verbal text of sentence completions, it was decided to compare the sentence completions of two subjects discriminated by their rank on a sociometric instrument. Validation was made by comparing these sentence completions with those of another pair of similarly discriminated subjects. Since sociometric results have been significantly related to other criteria, e.g., pupils' ratings by teachers, pupils' reputations among peers, (Remmers, 1962), it was decided to relate sociometric data to sentence completions.

The sociometric instrument used purports to measure the degree to which a student is desired as a friend by his peers. That is, on the basis of the rankings given him, it is possible to determine the degree to which his classmates like or dislike him.

One hypothesis of this paper is, then, that a student who is well-liked by his social group (in this instance, his classmates), will reveal different thoughts and feelings on a sentence completion test than will a student who is not well-liked by his classmates. That is, that the two types of students have personality differences which can be distinguished by the language of their sentence completions.

A second hypothesis is that the revealed differences in personality can be analyzed by the General Inquirer computer system.

METHOD

Subjects

From a total of forty-nine twelfth-grade students in a private school two subjects with the highest mean scores on the sociometric instrument and two subjects with the lowest mean scores were selected.

Instruments and Procedures

1. The "Classroom Social Distance

Scale" (Horace-Mann Lincoln Institute of School Experimentation, 1947) was devised to go beyond the usual sociometric approach which allows a limited number of responses to an approach which permits every individual to give a reaction to every other individual in the group. The instrument consists of five evaluative statements along a continuum from extreme "like" to extreme "dislike."

Subjects were asked to rate their classmates on the degree to which they would like classmates as friends and to rate themselves on the degree to which they thought their classmates would or would not like them as friends.

Arbitrary weights of 1 to 5 were assigned to the items, a weight of 5 was given to the most positive response. Raw scores were punched on to IBM cards and put through the 7090 computer.

2. The sentence completion test consists of 43 sentence stubs patterned after those of Rohde (1953).⁴ The sentence stubs are associated with school, career, friends — same and opposite sex, self, future, teachers, and achievement.

Subjects were asked to try to express their real feelings and opinions as rapidly as possible. The sentence completions were punched on to IBM cards. The cards were put through the General Inquirer system of the IBM 7090 computer with a program requesting tagging and a "Tag Tally" of the text.

The analysis of the text is based upon the frequency of text word occurrence in certain tag categories which yields an index score. The index score represents the number of times a word in that category occurred divided by the total number of words in the text, i.e., an index score of 20 equals 2%. Only one First Order category is used to tag a given text word. Since Second Order categories may be

⁴ A copy of the sentence stubs may be obtained from the author.

TABLE II—Differences Between Mean Ratings of Liked and Disliked Subjects

| | Mean Ratings | | | | | |
|-------|--------------|----------|------|-----|-------|--|
| | Liked | Disliked | t | ndf | p | |
| Girls | 4.04 | 2.44 | 8.41 | 48 | <.001 | |
| | Mean Ratings | | | | | |
| | Liked | Disliked | t | ndf | p | |
| Boys | 4.32 | 2.87 | 8.15 | 48 | <.001 | |

multiply applied to a First Order category, one should be careful in interpreting counts on a Second Order category as supporting one count or another. It is possible that both counts may be based on the same words in the text. An index score of 1% was selected to indicate the sensitivity of the "third" dictionary to the text.⁵ The 1% index score is applied where any one of the subjects obtained this frequency. Fifty-four percent of the First Order and 57% of the Second Order tags obtained the 1% frequency.

RESULTS

Table II shows the differences between means of the subjects with highest and lowest means on the sociometric scale. Note that one pair is male, while the other is female. The data shows the ratings of Liked subjects to be clearly different from those of Disliked subjects.

Table III illustrates the difference in total number of words used by each subject. In both cases Liked subjects used approximately twice as many words to complete sentences than did Disliked subjects.

TABLE III—Total Number of Words Used By Subjects

| Girls | | Boys | |
|-------|----------|-------|----------|
| Liked | Disliked | Liked | Disliked |
| 536 | 254 | 300 | 178 |

Table IV shows systematic differences between Liked and Disliked subjects on objects defined in sociological terms. Disliked subjects of both sexes are more concerned with themselves, while Liked subjects are less concerned with themselves and make

nearly twice as much reference to spatial and quantity dimensions. The high frequency count on self (subjects pooled) represents the highest percentage of words used in any category in the dictionary.

Table V shows systematic differences between Liked and Disliked subjects on psychological themes. Liked subjects verbalized arousal, pleasure, communication and movement considerably more than did Disliked subjects. Disliked subjects emphasized urge, negativity (not), bad, attempt, work, and possession.

Table VI shows differences between the two groups of subjects on sociological themes referring specifically to institutional and status divisions. Liked subjects are more concerned with academic words while Disliked subjects verbalize more about community, higher status and technology.

Differences between Liked and Disliked subjects on themes referring to underlying psychological motivations of personality are quite consistent as demonstrated by Table VII. Liked subjects understate more, verbalize more acceptance of people and are concerned with ascendancy and authority. Disliked subjects overstate more, are less accepting of people and verbalize less interest in ascendancy and authority.

The tables show that all of the differences between the pairs of subjects go in the same *direction* despite the fact that the two pairs of subjects are of opposite sexes. For example, frequency counts on the tag "overstate" are higher for the Disliked boy and girl while counts on the tag "understate" are lower for the Liked boy and girl.

⁵ Stone (1962) states that few categories exceed 8%.

TABLE IV—Differences Between Liked and Disliked Subjects on Sociological Themes. First Order Tags—Quadrant I

| Tag | Girls | | Boys | |
|------------------|-------|----------|-------|----------|
| | Liked | Disliked | Liked | Disliked |
| self | 4.90 | 10.40 | 6.40 | 6.90 |
| neuter-role | 2.60 | 3.20 | 1.00 | 1.70 |
| large-group | 1.30 | 2.00 | 1.70 | 4.60 |
| non-specific-obj | 2.40 | 2.80 | 2.70 | 3.40 |
| space ref | 4.20 | 2.00 | 5.10 | 2.30 |
| quantity ref | 6.10 | 3.20 | 7.80 | 4.00 |

TABLE V—Differences Between Subjects on Psychological Themes First Order Tags—Quadrant II

| Tag | Girls | | Boys | |
|-------------|-------|----------|-------|----------|
| | Liked | Disliked | Liked | Disliked |
| arousal | 1.70 | .00 | .06 | .00 |
| pleasure | 1.11 | .08 | .03 | .00 |
| think | .07 | 2.00 | 1.00 | 2.30 |
| not | .03 | 2.40 | 2.00 | 4.00 |
| bad | .03 | 1.20 | .03 | .05 |
| communicate | .09 | .04 | 1.00 | .00 |
| attempt | .03 | 2.00 | .00 | .05 |
| work | 1.70 | 2.40 | .00 | 1.70 |
| possess | .05 | 1.20 | .03 | .05 |

TABLE VI—Differences Between Liked and Disliked Subjects on Social Institutions and Status Second Order Tags—Quadrant III

| Tag | Girls | | Boys | |
|---------------|-------|----------|-------|----------|
| | Liked | Disliked | Liked | Disliked |
| academic | 3.20 | 2.40 | 3.70 | 3.40 |
| community | 1.30 | 1.60 | 1.00 | 4.60 |
| technological | 2.10 | 3.20 | .03 | 2.80 |
| higher-status | .05 | 1.60 | .03 | 1.10 |

TABLE VII—Differences Between Liked and Disliked Subjects on Underlying Psychological Motivation Second Order Tags—Quadrant IV

| Tag | Girls | | Boys | |
|-----------------|-------|----------|-------|----------|
| | Liked | Disliked | Liked | Disliked |
| overstate | 3.40 | 5.20 | 7.50 | 9.20 |
| understate | 4.20 | 1.20 | 1.70 | .05 |
| sign-accept | 3.40 | 1.60 | 1.70 | 1.10 |
| ascend-theme | 5.90 | 1.60 | 4.00 | 1.10 |
| authority theme | 1.70 | .08 | 2.30 | 1.70 |

DISCUSSION

The results indicate there are systematic differences between sentence completions of students liked by classmates and students disliked by classmates along a number of sociopsychological dimensions. The personality differences seem to be consistent with their classmates' perceptions of them as either desirable or undesirable as friends.

Certain inferences may be drawn about the personalities of the subjects in terms of the criterion of social desirability.

Both male and female Liked subjects used about twice as many words as did Disliked subjects. It may be conjectured that Liked subjects are generally more emotionally comfortable and are thus better able to express thoughts and feelings.

Liked subjects are less concerned with self than Disliked subjects. There is, then, the possibility that to be liked by one's classmates requires the ability to be interested in things and persons other than self.

The higher counts on "sign-accept" by Liked subjects imply greater interpersonal acceptance. It may be conjectured that these subjects are interested in friendships. Liked subjects also had higher scores on "communicate." It seems reasonable that interest in personal relationships and the ability to communicate are positively related to acceptance by one's social group.

Another concept apparently related to social popularity is "understate," a tag concept which connotes doubt or uncertainty as well as a defensive style. This kind of verbalization seems to be a defense in the service of the Liked individual. On the other hand, Disliked subjects emphasize "overstate," a concept which also indicates a defensive style. However, the words tagged here are emphatic or exaggerative in connotation. It does not seem unreasonable that exaggerative language might be a deterrent to social acceptance.

The overall pattern of Disliked subjects as they are conceptualized by the General Inquirer "Tag Tally" system is that of individuals who are concerned with themselves, are negative in outlook, tend to be exaggerative, and are less accepting of interpersonal relationships. They seem less interested in communication, make considerably fewer references to states of gratification, are apparently less motivated to achieve in school and are quite concerned with higher status.⁶

The overall pattern of the Liked subjects, on the other hand, is that of individuals who are interested in school work and achievement, are con-

cerned with higher status, are more concerned with things in the environment than with themselves and are more interested in personal relationships. It is not surprising that these subjects are more popular with their classmates.

No rigorous claim is made for these results since the research is but a pilot study with a small sample and a limited text. An increase in text quantity would probably yield greater differences between Liked and Disliked subjects. Moreover, it is possible to develop a dictionary to include concepts specifically related to a specific sentence test. Thus, an interesting research problem would be to use Rohde's (1957) standardized instrument with its greater number of items along with a dictionary that included concepts from Murray's (1938) needpress scheme since the Rohde test is based on the Murray scheme.

Further research on sentence completion analysis by the General Inquirer using different criteria for distinguishing subjects may also prove rewarding.

REFERENCES

- Campbell, D. T. The indirect assessment of social attitudes. *Psychol. Bull.*, 1950, 47, 15-38.
- Costin, F., & Eiserer, P. Students' attitudes toward school life as revealed by a sentence completion test. *Amer. Psychologist*, 1949, 4, 289.
- Deutsch, M. Field theory in social psychology. In G. Lindzey (Ed.), *Handbook of social psychology*. Cambridge: Addison-Wesley, 1954, Pp. 181-222.
- Horace Mann-Lincoln Institute of School Experimentation. *How to construct a sociogram*. New York: Bureau of Publications, Teacher's College, Columbia Univer., 1947.
- Kline, M. A short form of sentence-projection technique. *J. gen. Psychol.*, 1948, 39, 273-289.
- Leary, T. *Interpersonal diagnosis of personality*. New York: Ronald, 1957.
- Lehner, G. Projections of men and women to items referring to the same and opposite sex in a sentence completion test. *Amer. Psychologist*, 1947, 2, 407.
- McPherson, W. R., Dunphy, D. G., Bales, R. F., Stone, P. J., & Ogilvie, D. M. *A revised psychological and sociological dictionary for the general inquirer*. Unpub-

⁶ Another aspect of the General Inquirer system, the questioning procedure, might reveal whether patterns are a cause or effect of lack of social acceptance.

- lished manuscript. Harvard Univer., 1963.
- Murray, H. A. *Explorations in personality*. New York: Oxford Univer. Press, 1938.
- OSS Assessment Staff. *Assessment of men*. New York: Rinehart, 1948.
- Parsons, T., & Bales, R. F. *Family, socialization, and interaction process*. New York: Free Press, 1955.
- Remmers, H. H. Rating methods in research on teaching. In N. L. Gage (Ed.) *Handbook of research on teaching*. Chicago: Rand McNally, 1963, Pp. 329-378.
- Rohde, Amanda R. *The sentence completion method*. New York: Ronald, 1957.
- Rotter, J. H. & Willerman, B. The incomplete sentences test as a method of studying personality. *J. consult. Psychol.*, 1947, 11, 43-48.
- Sanford, R. N., & Cobb, E. A. Studies of personality and environment: physique, personality, and scholarship. *Monogr. Soc. Res. Child Developm.*, 1943, 8, No. 1.
- stein, M. I. The use of a sentence completion test for the diagnosis of personality. *J. clin. Psychol.*, 1947, 3, 45-46.
- Stone, P. J., Bales, R. F., Namenwirth, J. Z. & Ogilvie, D. M. The general inquirer: a computer system for content analysis and retrieval based on the sentence as a unit of information. *Behav. Sci.*, 1962, 7, 1-15.
- Stone, P. J. *Letters to a psychiatrist: an analysis of the writings of eve white, eve black and jane*. Unpublished manuscript. Harvard Univer., 1962.
- Symonds, P. J. The sentence completion test as a projective technique. *J. abnorm. soc. Psychol.*, 1947, 42, 320-329.
- Thorndike, E. L., & Lorge, I. *The teacher's word book of 30,000 words*. New York: Bureau of Publications, Teacher's College, Columbia Univer., 1944.
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Received May 5, 1965

Possession of Hostility and Accuracy of Perception of it in Others: A Cross-Sex Replication¹

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Summary: Replicating an earlier study with men, four groups of college women (hostile-insightful, hostile-noninsightful, friendly-insightful, friendly-noninsightful) were evaluated for accuracy of judgments of hostility regarding their dormitory sisters. The normalized mean ranking was the criterion, and the mean discrepancy between S's judgments of her peers and the group assigned value constituted her inaccuracy score.

Results duplicated the earlier study with the rank order from most to least accurate being friendly-insightful, friendly-noninsightful, hostile-insightful, and hostile-noninsightful. The chief factor was objective possession of hostility while insight and the self concept appeared to have little effect. Women appear to be more accurate in perception of other women than men are in perceiving other men.

The relationship between a person's perception of himself and his perception of others occupies a vital role in most theories of personality. It is generally believed that the possession of negatively valued traits impairs the perceiver's ability to judge the trait in others. Insight into self-possession of negative traits, however, is commonly presumed to serve as a corrective factor for perceptual distortion.

Despite these beliefs, there has been little empirical research in this area. An earlier study by the author investigated the relationship of the possession of hostility to the accuracy of perception of it in others using a sample of college men (Murstein 1961). The results indicated that the key factor influencing accuracy was the objective possession of hostility as judged by one's peers. Hostile persons regardless of their self concept were significantly less accurate in the perception of hostility in others than friendly persons. The factor of insight, however, played a secondary role, and the self concept with reference to hostility was unrelated to the accuracy of perceiving hostility in others.

The purpose of the present replication was twofold. First, it was desired to ascertain whether the findings re-

ported above were peculiar to men or whether they would apply also to a sample of college women. Further, a replication of the earlier results would inspire greater confidence in their stability and generality. The first two hypotheses advanced were the same as in the earlier study.

1. "Hostile" persons are less accurate in their perception of the trait of "hostility" in others than are friendly persons.

2. "Insightful" persons are more accurate in their perception of "hostility" in others than are "noninsightful" persons.

The third hypothesis relates to our new feminine sample. Traditionally, women are reputed to be more concerned with interpersonal relationships and keener in their interpersonal perception than are men. In social gatherings they are said to be much more sensitive to the subtle feelings expressed whereas men react more to the overt behavioral expression. Our third hypothesis, therefore, was:

3. Women in the present study will manifest a significantly greater degree of perceptual accuracy in predicting the possession of hostility in other women than the men in the former study were able to predict the possession of hostility in men.

¹Thanks are due to Sally Tehan for her aid with the computations.

METHOD

The subjects were drawn from 14 dormitory wings and sororities at a northwestern university. Prior to a regularly scheduled "house" meeting, sheets of paper were handed out to all members present who had been members of the group for at least 3 months. The familiarity of each subject with all others in his group was thus assured. The names of all the members present for the meeting were written down by each member on her sheet. The following instructions appeared at the top of the subject's sheet:

Put a 1 in the small column to the right of the name of the person whom you consider to be the most friendly of those taking the test with you. By "most friendly"² is meant that person who is the most cooperative, easiest to get along with, and least hostile in the group. Put a number 2 next to the second most friendly person, and so on, until you have a different number for each person currently taking the test. Remember to rate yourself and to make sure that your name is also at the top of the page. Also, do not rate any member who is not taking the test with you.

The ranks were converted to normalized scores, with a mean of 5 and a standard deviation of 2, using Hull's table (Guilford, 1954, p. 182).

From the initial 285 Ss it was hoped to assign as many as possible on the basis of the group and self judgments to one of four groups: hostile-insight-

ful (group judgment hostile, self judgment hostile), hostile-noninsightful (group judgment hostile, self judgment friendly), friendly-insightful (group judgment friendly, self judgment friendly), friendly-noninsightful (group judgment friendly, self judgment hostile). The chance of selecting an extreme subject incorrectly was to be no greater than .05. The cutting scores were based on consideration of the standard error of measurement of each of the group and self judgments. For the group judgments split-half reliability coefficients were obtained by dividing members of each group randomly into two halves, correlating the mean judgments by each half for every person in the group, then applying the Spearman-Brown correction. The scores derived from the mean dormitory or sorority judgments for a given individual are henceforth referred to as G scores.

The reliability of the self-scores (S scores) was obtained in another manner. Although a complete reranking would ideally have been required, time requirements of this procedure made it impracticable. Therefore, another method was adopted. Previous work by Calvin and Holtzman (1953) and Murstein (1956) indicated that the reliability of S scores in pooled rankings is approximately .90. This value was assumed to operate for the total population of subjects in the present study. To reduce the greater sampling fluctuation of the S score as compared to the G score, the standard deviation of self-rankings also was computed for the total population of subjects rather than for each individual group.

The chance of selecting an extreme subject incorrectly was to be no greater than .05. Hence, the criteria for selection of the hostile-insightful group were $G \geq 1.96$ (standard error of measurement of G) + mean of G, and $S \geq 1.96$ (standard error of measurement of S) + mean of S. For the friendly-insightful group a similar

²At first glance the assumption that the persons ranked as least friendly, as in the present study, are also perceived as most hostile may seem questionable. May not a person be aloof and unfriendly and yet not hostile? But, the manner in which "least friendly" was defined by the investigator made it clear to the subjects that these persons were to be evaluated as hostile. Subjects were told that "most friendly" meant "that person who is the most cooperative, easiest to get along with, and least hostile in the group." Moreover, the magnitude of the average reliability for the group judgments of the 14 groups (.89) indicated that the rankers probably employed an unidimensional scale.

formula was used except that now the cutting score was below the mean. The criteria were, therefore, $G \geq M_g - 1.96SE_g$, and $S \leq M_s - 1.96SE_s$, where SE and M refer to standard error and mean, respectively. Similar logic was followed in selecting the hostile-noninsightful and friendly-noninsightful groups. For the first of these groups, G was $\geq M_g + 1.96SE_g$. To insure noninsightfulness, the self-ranking had to be sufficiently below the G ranking so that the risk of error was to be .05 or less. Hence, the $G - S$ discrepancy had to be ≥ 1.96

$\sqrt{SE_g^2 + SE_s^2 - 2r_{gs}SE_gSE_s} + M_{(g-s)}$. For the friendly-noninsightful group, G was $\leq M_g - 1.96SE_g$. The amount by which an individual's S score had to exceed his G score for the individual to be noninsightful was ≥ 1.96

$\sqrt{SE_g^2 + SE_s^2 - 2r_{gs}SE_gSE_s} + M_{(g-s)}$.

Table I summarizes the cutting scores for all four groups.

The average reliability of the G scores for the 14 student groups was .89, the range being from .62 to .98. The standard deviation (SD) range of G varied from .86 to 1.32, while the SEs ranged from .18 to .73. The reliability of the S scores was estimated to be .90, and the SD and SE values computed for the total population were 1.09 and .35, respectively. These S values were used as constant S criteria for the selection of subjects from each of the 14 groups.

Since the objectivity of perception of a particular group member was measured in terms of the M of the group judgments for her, and since

each experimental subject had contributed to the determination of the objectivity score, the G score was recomputed, omitting in turn each subject's judgment score for each individual in her group. Then each subject's judgment for each member of her group was compared (without regard to sign) to the M judgment for that individual by the remaining members to yield a discrepancy score. The M of these discrepancies for all individuals in the group represented the individual judge's inaccuracy score. The higher the discrepancy the greater the inaccuracy score.

The data were to be analyzed by a factorial design analysis of variance and the largest number that could be chosen through the aforementioned selection criteria while maintaining the restriction that the rows and columns be proportional was as follows: hostile-noninsightful 12, hostile-insightful 9, friendly-noninsightful 9, and friendly-insightful 12.

RESULTS

The correlation between group judgments of an individual and his self judgment for all 14 groups was $-.34$ ($p < .01$). The self concept scores, therefore, show a small but highly significant negative relationship with the group judgments of the individual.

Hypothesis 1 ("hostile" subjects would perceive others more inaccurately than would "friendly" subjects) was tested by means of a 2×2 factorial design for the variables "group judg-

TABLE I. Criteria for Selection of Four Personality Groups

| Group Rankings For Hostility | Self-Rankings for Hostility | |
|------------------------------|--|--|
| | High | Low |
| High | Hostile-insightful | Hostile-noninsightful |
| | $G \geq M_g + 1.96SE_g$ $S \geq M_s + 1.96SE_s$ | $G \geq M_g + 1.96SE_g$ $(G-S) \geq 1.96\sqrt{SE_g^2 + SE_s^2 - 2r_{gs}SE_gSE_s} + M_{(g-s)}$ |
| Low | Friendly-noninsightful | Friendly-insightful |
| | $G \leq M_g - 1.96SE_g$ $(S-G) \geq 1.96\sqrt{SE_g^2 + SE_s^2 - 2r_{gs}SE_gSE_s} + M_{(g-s)}$ | $G \leq M_g - 1.96SE_g$ $S \leq M_s - 1.96SE_s$ |

ment" (hostile or friendly) and "self judgment" (hostile or friendly). The results are shown in Table II.

TABLE II. Analysis of Variance of Perceptual Inaccuracy for the Trait of Hostility

| Source of Variance | df | MS | F |
|--------------------------|----|------|-------|
| Between Group | | | |
| Judgments | 1 | .207 | 4.93* |
| Between Self Judgments | 1 | .020 | .48 |
| Interaction Group X Self | 1 | .056 | 1.33 |
| Within Groups | 38 | .042 | |

* significant at .05 level

In accord with the hypothesis and the earlier results, "hostile" persons are significantly more inaccurate in their perception of hostility in others than are "friendly" persons. At the same time, the self concepts do not appear to influence accuracy of perception.

The mean score for each group of women is shown graphically in Figure 1. While at first glance the differences do not appear very large it must be noted that there is a regression of the group judgments toward the group mean as a function of the number of judgments comprising the group score which is not true of the single judgment. Even the most accurate per-

ceiver, therefore, will show a considerable disparity between the group score and his own judgment. Accuracy, therefore, is a relative matter.

To test these differences for significance, each personality group mean was compared with the other means via a *t* test. The means, standard deviations and *t* values are shown in Table III. As in the earlier study, both the hostile-insightful and hostile-noninsightful groups were significantly more inaccurate than the friendly-insightful group.

Unlike the earlier study, however, Hypothesis 2, (that the pooled insightful groups would have lower inaccuracy scores than the noninsightful groups) was not supported although there is clearly a trend in that direction ($p < .10$).

With reference to the third hypothesis, that men would be more perceptually inaccurate than women, it should be noted (Figure 1) that the perceptual inaccuracy scores of the men are greater than the scores of the women in each of the four groups. The probability of such an occurrence by chance is $< .07$. A *t* test of differences between the groups, however, yielded a value of 1.50 ($p < .10$). The hypothesis is thus technically not supported if one adopts the traditional .05 level of confidence, although a consistent trend is apparent.

The chief finding was the clear similarity between the results of the earlier study with men and the present study employing women. Objective possession of hostility (as determined by peer judgments) does color the supposedly objective perceptions of hostility in others leading to more inaccurate perception than is true of the perceptions by friendly persons. The self concept as measured by rankings does not influence perception, while insight appears to play at best a minor role. There is some support for a superiority of women as more accurate perceivers of hostility in others than men although the differences in this study were not great and the sta-

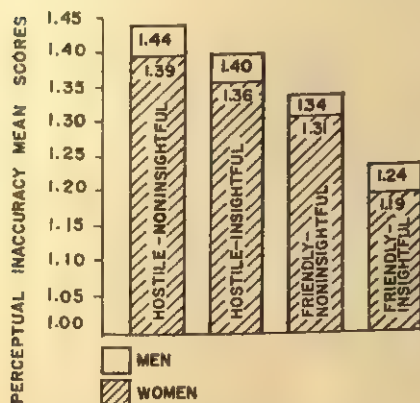


FIGURE 1. Mean Perceptual Inaccuracy Scores for the Four Personality Groups of Men and Women (Shaded Area).

TABLE III. Means, Standard Deviations and *t* Values for the Four Personality Groups

| Group Judgment | Self Judgment | M. | S.D. | | Friendly-Friendly | Hostile-Friendly | Friendly-Hostile |
|----------------|---------------|------|------|--------------------------|-------------------|------------------|------------------|
| Hostile | — Hostile | 1.36 | .10 | Insightful $t = 1.53$ | 1.81* | .34 | .56 |
| Friendly | — Friendly | 1.19 | .25 | | | 2.33* | 1.22 |
| Hostile | — Friendly | 1.39 | .15 | Noninsightful | | | .94 |
| Friendly | — Hostile | 1.31 | .15 | | | | |

* significant at .05 point

tistical significance marginal. It seems likely, however, that statistical significance ($p < .05$) might have been attained readily enough if the female population of selected Ss ($N=42$) had equaled the male population ($N=80$) of the former study.

In addition to replicating the study reporting the superiority of women in this regard, future research might well concern itself with the determinants of such superiority. Are they genetic, environmental, or is it "a sixth sense" that enables women to see members of their sex more accurately than men view their own sex? Further, is this superiority maintained in judging men? Can men predict women more accurately in this regard

than their own sex? These tantalizing questions await further research.

REFERENCES

- Calvin, A. D. & Holtzman, W. H. Adjustment and the discrepancy between self concept and the inferred self. *Journal of Consulting Psychology*, 1953, 17, 39-44.
- Guilford, J. P. *Psychometric Methods*. (2nd ed.) New York: McGraw-Hill, 1954.
- Murstein, B. I. The projection of hostility on the Rorschach and as a result of ego-threat. *Journal of Projective Techniques*, 1956, 20, 418-428.
- Murstein, B. I. The effect of amount of possession of the trait of hostility on accuracy of hostility in others. *Journal of Abnormal and Social Psychology*, 1961, 62, 216-220.
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Children's Expression of Like-Dislike and Their Responses to Color in the Rorschach

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Summary: In a study of retarded readers the Rorschach was administered to 24 children, average age 11.0, average WISC IQ 95.0. Of the 24 subjects, 18 chose a color card as their "most liked card" and 17 specifically mentioned color as their reason for doing so. Yet 11 of them had not used color as a Main or Additional Determinant for the card in question. It is concluded that the absence of color responses does not denote the absence of conscious responsiveness to color in a child.

The general hypothesis about the use of color in the Rorschach has usually been formulated in some such form as (Klopfer, Ainsworth, Klopfer and Holt, 1954, p. 276): "... the way in which the subject handles color gives an indication of his mode of reacting to an emotional challenge from his environment which taxes his skill in integrating an outside influence with his activity-in-progress."

If there is an absence of color responses to the last 3 cards the accepted interpretation is that this indicates either a withdrawal from emotional involvement with the environment or at least (if sufficient non-color-responses are present) "a repression of emotional responsiveness" (Klopfer *et al.*, 1954, p. 374). This would seem to imply that the verbalization of color—or its absence—in the response is an

adequate measure of the subject's conscious responsiveness to color.

Relating the "most-liked card" and the reason for this choice to the use of color would appear to provide another check on the subject's responsiveness to color.

Wallen (1948) investigated the impact of color (abandoning the standard procedure of administering the Rorschach) by simply asking individual subjects: "Do you like this card?" He found that his subjects preferred the cards toward the end of the series whether the cards were presented in standard or in reversed order. A group of unstable subjects showed a relative dislike for the colored version of cards II, III and IX and a relative liking for VII and X. Wallen suggests that it is not color by itself, but color in the

TABLE I

Most Liked Cards

| | I | II | III | IV | V | VI | VII | VIII | IX | X | Overall |
|----------------------------------|---|----|-----|----|---|----|-----|------|----|-----|---------|
| No. of times chosen: | 1 | | | | 2 | 1 | 2 | 1 | 3 | 14 | 24 |
| Color mentioned as reason | | | | | | | | 1 | 2 | 14 | 17 |
| Of these 17 | | | | | | | | 1 | 1 | 7 | 9 |
| Sum C = O for: | | | | | | | | | | | |
| Color not used in chosen card as | | | | | | | | 1 | 1 | 9 | 11 |
| Main or Add. Det. | | | | | 1 | 2 | 0.5 | 2 | 2 | 2.6 | 2.2 |
| Rs per card chosen | 3 | | | | | | | | | | |

Most Disliked Cards

| | | | | | | | | | | |
|---------------------|---|---|---|-----|---|---|-----|--|-----|-----|
| No of times chosen: | 1 | 1 | 1 | 6 | 1 | 3 | 8 | | 3 | 24 |
| Sum C = O for: | | 1 | 1 | | | | | | 1 | 3 |
| Rs per card chosen: | 2 | 1 | 2 | 1.5 | 4 | 0 | 1.4 | | 2.7 | 1.5 |

Rejected Cards

| | | | | | | | | | | |
|-----------------------|---|---|--|--|---|---|---|---|---|--|
| No. of times rejected | 1 | 4 | | | 7 | 3 | 1 | 3 | 2 | |
|-----------------------|---|---|--|--|---|---|---|---|---|--|

special shapes of the blots which may produce an unpleasant affect.

INVESTIGATION

An investigation into the personality characteristics of children with reading disabilities provided an opportunity of comparing the actual use of color with the choice of a "most-liked card" and the reasons for this choice. The subjects were 24 children (16 boys and 8 girls), average age 11.0 years, S.D.: 1.2, average WISC IQ: 95.0, S.D.: 8.1.

From the Table it can be seen that 18 out of 24 subjects chose a color card as the one they liked most. When they were asked why they preferred their particular card, 17 subjects specifically mentioned 'color' as a reason. Yet of these 17, 11 did not use color as a Main or Additional Determinant for the card in question and 9 of the 17 had a "Sum C" of zero. Some subjects used concepts for which the color of the blot could not form a natural basis, i.e. color could not reasonably be implied (e.g. 'crab' for the blue outer detail in Card X). Others produced concepts with which the color of the blot would easily blend — some of these, during the 'Limits' stage, denied that color played a part in determining the concept, others admitted this.

In a number of cases there were "sinister" responses (cf. Alock, 1963) to the chosen card, e.g. one boy gave his reason for preferring Card IX: "There is a volcano — it's good, a volcano." Sinister or violent content therefore, it seems, does not necessarily detract from a card's appeal.

The general attractiveness of color for these children is confirmed if we inspect the figures for the "Most disliked cards" and "Rejected cards." The achromatic cards figure much more prominently than the chromatic ones in these two categories taken together (33 times against 9), with the most frequent mention going to Cards VII (11 times), VI (10) and IV (10). (See Table.) It was these cards, it

would appear, which aroused the most unpleasant affect.

DISCUSSION AND CONCLUSION

The subjects of the experiment were all retarded readers and thus not a normal group. However, their average Sum C was 1.2 and this, as well as their total number of responses (average: 19.85) is almost the same as the average Sum C and the responses of the 10-13 year old children on whom Ames, Metraux, and Walker (1959) base their norms. Only half of the 24 children in this study, however, used any color, as against two-thirds of Ames' sample. This may indicate that these children have greater difficulty in integrating color with intellectually-based concepts, or in the words quoted above (Klopfer, et al., 1954): "... in integrating an outside influence with his activity-in-progress," and this greater difficulty may well be connected with their emotional lability which tends to disrupt their personality functioning.

However, this does not affect the point that eleven subjects chose colored cards as their favorite card, mentioning color as the reason, in the absence of color as determinant. The fact that these subjects were able to cite color as the main reason for their choice suggests that they did not lack responsiveness to color but that, on the contrary, they were aware of the impact color made on them although they did not integrate color with form in their verbal descriptions.

This finding does, of course, not prejudice the question what conscious reaction to color in the Rorschach may represent in terms of behavior in every-day life, but it does suggest that a conscious responsiveness to color is possible even in the absence of overt or implied color responses.

REFERENCES

- Alcock, T., *The Rorschach in practice*. London: Tavistock, 1963.
- Ames, L. B., Metraux, R. W., and Walker, R. N. *Adolescent Rorschach responses*. New York: Hoeber, 1959.

Klopfer, B., Ainsworth, M. D., Klopfer, W. G., and Holt, R. R., *Developments in the Rorschach technique*, Vol. I. New York: World Book Company, 1954.

Wallen, R., The nature of color shock. *J. Abnorm. soc. psychol.*, 1948, 43, 346-356.

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Received April 15, 1965

Revision received July 28, 1965

A Brief Note on the Comparison of Two Grapho-Motor Techniques in Diagnosing Brain Damage

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Summary: There were no differences between the Bender-Gestalt and two items from Reitan's Aphasia Screening Test in discriminating 50 organic and 50 non-organic psychiatric patients.

Despite its widespread use in diagnosing organicity, or perhaps because of it, the literature reveals little basic research comparing the Bender-Gestalt Test (BG) with other possible designs and/or grapho-motor approaches. The present study, an initial attempt to remedy this deficiency, compared the BG with a grapho-motor task which had already demonstrated promise in diagnosing organicity: the drawing of a "Greek cross" and the writing of the sentence "He shouted the warning" (Heimburger and Reitan, 1961; Wheeler and Reitan, 1962).

The Ss were 50 organic (O) and 50 non-organic (NO) patients selected from the files of Cleveland State Hospital, Cleveland, Ohio. The psychiatric diagnoses had been previously determined by the staff of the hospital. There were no significant differences between the groups in terms of sex, race, age, length of hospitalization and years of education. After the tests were administered in the standard manner the two sets of drawings were coded, shuffled, and presented to three judges with Ph.D.s in Clinical Psychology for classification into O and NO categories.¹

Although all classifiers were able to differentiate the O and NO patients at significant statistical levels with both the BG and Reitan's items (RI), there were no significant differences between the BG and RI in differentiating the two groups. In fact, had the choices of the three judges been combined into a total N of 300, the BG would have produced 190 correct and 110 incorrect classifications as compared to 210 cor-

rect and 90 incorrect classifications with the RI, yielding a chi square significant at the .10 level.

These findings take on added significance when the following factors are considered: (1) the judges were all unfamiliar with the RI and had, in fact, never heard of it; (2) administration time was generally shorter for the RI; (3) according to Reitan, the RI can be used to lateralize brain damage, thus supplying additional diagnostic information without a corresponding increase in administration time; (4) the interjudge reliabilities were higher for the RI than the BG (BG=.72, .64, .68; RI=.76, .84, .88).

Since these were custodial patients it would be unwarranted to generalize these findings to out-patient populations; also, aside from the major classifications of O and NO, the subjects were diagnostically heterogeneous and it was not possible to investigate the contrasting efficiencies of the two tests across standard diagnostic classifications. Nevertheless, the results seem provocative enough to recommend further comparative research with Reitan's items and/or other grapho-motor techniques.

REFERENCES

- Heimburger, R. F. & Reitan, R. M. Easily administered written test for lateralizing brain lesions. *J. Neurosurg.*, 1961, 18, 301-312.
- Wheeler, L. & Reitan, R. M. Presence and laterality of brain damage predicted from responses to a short aphasia screening test. *Percep. mot. Skills*, 1962, 15, 783-799.

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Received June 5, 1965

Revision received July 29, 1965

¹ Appreciation is expressed to Elaine Benjamin Heath, Robert Conquest, and John Lowentfeld for classifying the protocols.

Sex Drawn First and Sex Drawn Larger by Opiate Addict and non-Addict Inmates on the Draw-A-Person Test^{1,2}

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Summary: Fifty-nine incarcerated opiate addicts and 66 incarcerated non-addicts were asked to "draw a person." A significantly greater number of the addicts drew the female figure first when compared with the non-addicts and with normal males reported in a previous study. The opiate addict inmates also drew the female figure larger than the male figure, while the non-addicts did not draw either the male or the female figure larger. These results support the psychoanalytic postulates of maternal identification and sexual confusion in male opiate addicts. The results also illustrate the utilization of quantitative research methods with projective techniques such as the DAP.

The literature on opiate addiction includes much about the dynamics of the mother-male addict relationship. Chein, Gerard, Lee, and Rosenthal (1964) have stated that "a prominent feature of the family situation of the adolescent opiate addict . . . is the peculiarly close relationship between the addict and his mother. It is not a closeness of warmth or mutual regard so much as it is a clinging and feeling of being bound together" (1, p. 212). Zimmering, Safrin, Toolan, and Wortis (1951) have emphasized the close identification of the addict with his mother, as have other writers. There has also been discussion about the relationship between opiate addiction and sexual confusion in the addict. These personality aspects of the opiate addict, which are agreed upon by most writers in the area, are summarized comprehensively in Chein, *et al.* (1964).

The sex drawn first in the Draw-A-Person test (DAP) has been reported for groups of normals, psychiatric patients, and alcoholics. Machover (1951) states that drawing the opposite sex first indicates some confusion as to sexual identification.

Levy (1959) postulates the following explanations: "Sexual inversion, confusion of sex identifications and strong attachment to or dependence on some other individual of opposite sex" (4, p. 263).

Table I presents data reported in the literature regarding sex drawn first on the DAP. In general, 85 to 90 per cent of normal males draw their own sex first. The percentage of females drawing their own sex first is much lower. Mainord (1953) feels that this may be due to the stronger role cast by the male figure in our society. Two studies of the drawings of male psychiatric patients report slightly decreased percentages of same sex first figure drawings (Laird, 1962; Mainord, 1953).

Wisotsky (1959) indicates a significant departure from the normal percentage range in the figure drawings of incarcerated alcoholics, 73.9 per cent of his male subjects having drawn the male figure first (1959).

It is the purpose of this study to determine the sensitivity of the DAP test to the reported maternal identification and sexual confusion of the opiate addict. Specifically:

- 1) Will more opiate addicts draw the female figure first when compared with non-addict controls?

- 2) Will more opiate addicts draw the female figure larger than the male figure?

¹This study was sponsored, in part, by research grant No. RD 1568-M, from the Vocational Rehabilitation Administration, United States Department of Health, Education, and Welfare.

²The authors gratefully acknowledge Fré LePoole, Phillip Appel, and Samir Hakki for their technical assistance.

TABLE I — Sex Drawn First on the Draw-A-Person Test

| Study | Classification | N | Sex | % drawing own sex first |
|-----------------|-------------------------|------|--------|-------------------------|
| Present sample | Opiate addict inmates | 59 | Male | 47.5* |
| Present sample | Non-addict inmates | 66 | Male | 71.2* |
| Levy (1959) | Normal-mixed | 5000 | — | 87.0 |
| | Homosexual | 16 | — | 18.7 |
| Laird (1962) | Psychiatric | 71 | Male | 84.5 |
| | Alcoholic | 100 | Male | 81.0 |
| Mainord (1953) | Psychiatric | 164 | Male | 82.3 |
| | Psychiatric | 105 | Female | 60.9 |
| Wisotsky (1959) | Alcoholic inmates | 490 | Male | 73.9 |
| | Alcoholic inmates-white | 231 | Male | 76.6 |
| | Alcoholic inmates-Negro | 259 | Male | 71.4 |

* X^2 equals 6.36, significant at the 0.02 level (d.f. = 1).

3) Will more opiate addicts draw the female figure larger than a non-addict control group?

As part of a larger study, 125 adult male inmates of the Riker's Island Penitentiary were given a blank 8½" x 11" sheet of paper and asked to "Draw a person." An additional drawing of the opposite sex was obtained from 80 of the 125 inmates upon completion of the first figure. The comparison groups for the sex drawn first and the sex drawn larger variables will have the following sample sizes:

1) Sex drawn first — 125 (59 addicts and 66 non-addicts).

2) Sex drawn larger — 79 (54 addicts and 25 non-addicts).

Inmates were classified as addicts if they had previously used heroin, providing that they had experienced withdrawal at least once and had then returned to heroin usage. Inmates were classified as non-addicts if their institutional records showed no drug usage.

Sex drawn first comparisons were obtained between opiate addicts and non-addicts in the present sample, as well as between the two groups in the present study and those samples reported in the literature. (See Table I.) Sex drawn larger comparisons were obtained from the present sample only.

A Chi-square test was performed to compare the opiate addict inmate group with the non-addict inmate control group for incidence of sex drawn first. The results indicate that a significantly greater number of opiate addict inmates drew the female figure first in the DAP, when compared with the non-addict inmates ($X^2=6.36$, Sig. at 0.02 level).

The comparison for sex drawn larger indicates that a significantly greater number of opiate addict inmates (85%) drew the female figure larger than the male figure when compared with the non-addicts (20%) ($X^2=28.95$, Sig. at 0.001 level).

To determine whether the female figure drawings of the opiate addicts were significantly larger than their male figures, means and standard deviations were obtained and t tests were performed. The results of these comparisons may be found in Table II. These results are summarized briefly:

1) Addicts drew female figures significantly larger than male figures (t test, Sig. at 0.05 level).

2) Non-addicts did not draw either the male or the female figure significantly larger (t test, not significant).

3) Addicts drew the female figure significantly larger than did the non-addicts (t test, Sig. at 0.001 level).

4) Addicts did not draw the male figure significantly larger or smaller than non-addicts (t test, not significant).

Comparison of the present data and those reported in the literature reveals that the opiate addict inmates drew the female figure first to a greater extent than did any of the groups reported in the literature, with the exception of homosexuals (t tests, Sig. at 0.001 level). The non-addict inmate group was found to differ significantly from the normals with respect to sex drawn first (t test, Sig. at 0.01 level). The non-addicts were not found to differ significantly from any of the male psychiatric or alcoholic groups reported in the literature.

Interviews with, and case histories of male opiate addicts generally reveal an indifferent or absent father, and a dominant and over-protective mother. The mothers of some addicts have even supplied their sons with money for drugs. Indeed it is often the mother who presents a major obstacle to the rehabilitation of the addict. The characteristics related to maternal dominance and over-protectiveness, which have been reported many times in the literature, are revealed in the DAP test by the tendency of opiate addicts to draw women first (52.5%) and to draw women larger (85%).

Despite the small number of homosexuals tested by Levy, it is note-

worthy that this is the only sample in the literature to report more than half of the subjects tested as drawing the opposite sex first (Levy, 1959). This reversal is also found in the drawings of the opiate addicts in the present study. These findings support recent psychoanalytic postulates regarding the similarity of opiate addict and homosexual personality patterns. Case histories of opiate addicts and homosexuals reveal the similar parent-child relationships mentioned previously. Further research is necessary to determine the reasons for individuals becoming either homosexuals or opiate addicts subsequent to these apparently similar parent-child relationships in their youth. Additional investigation is also needed to determine whether the percentage of opposite sex first drawings will increase when addicts are tested outside of a prison. A significant increase in opposite sex first drawings of non-incarcerated addicts could lead to the utilization of the DAP as a predictor of future drug addiction (or homosexual behavior) in young adolescents.

The present study employs two quantifiable variables of the DAP. These variables were selected for their possible relevance to the personality dynamics of opiate addicts. Other research uses of the DAP should be made possible through the development of other quantifiable variables.

TABLE II — Means, Standard Deviations and t Test Comparisons of Size of Male and Female Figure Drawings of Opiate Addict and Non-addict Male Inmates on the Draw-A-Person Test

| Group | Variables | N | Mean (cm.) | Standard deviation | t |
|-----------------|-----------------|----|------------|--------------------|-------------|
| Opiate addicts | Male drawings | 54 | 12.46 | 4.94 | 1.98* |
| | Female drawings | 54 | 14.43 | 5.36 | |
| Non-addicts | Male drawings | 25 | 12.44 | 4.41 | 0.62 (N.S.) |
| | Female drawings | 25 | 11.64 | 4.66 | |
| Female drawings | Addicts | 54 | 14.43 | 5.36 | 2.36** |
| | Non-addicts | 25 | 11.64 | 4.66 | |
| Male drawings | Addicts | 54 | 12.46 | 4.94 | 0.02 (N.S.) |
| | Non-addicts | 25 | 12.44 | 4.41 | |

*Significant at 0.05 level.

**Significant at 0.01 level.

N.S. Not significant.

REFERENCES

- Chein, I., Gerard, D., Lee, E., & Rosenfeld, Eva. *The Road to H*. New York: Basic Books, 1964.
- Grannick, S. & Smith, L. J. Sex sequence in the DAP test and its relation to the MMP1 Mf scale. *J. consult Psychol.* 1953, 17, 71-73.
- Laird, J. T. A comparison of male normals, psychiatric patients and alcoholics for sex drawn first. *J. clin. Psychol.* 1962, 18, 302.
- Levy, S. Figure drawing as a projective technique. In L. Abt & L. Bellak (Ed.), *Projective Psychology*. New York: Gnome Press, 1959.
- Machover, Karen. Drawings of the human figure. In H. H. Anderson & G. L. Anderson (Ed.), *Projective Techniques*. Englewood Cliffs, N. J.: Prentice-Hall, 1951.
- Machover, Karen. *Personality Projection in the Drawing of the Human Figure*. Springfield, Ill.: C. C. Thomas, 1949.
- Mainord, F. R. A note on the use of figure drawings in the diagnosis of sexual inversion. *J. clin. Psychol.* 1953, 9, 188-189.
- Swenson, C. H. & Sippelle, C. N. Some relationships among sexual characteristics of human figure drawings. *J. proj. Techn.* 1956, 20, 224-226.
- Wisotsky, M. A note on the order of figure drawing among incarcerated alcoholics. *J. clin. Psychol.* 1959, 15, 65.
- Zimmering, P., Toolan, J., Safrin, R., & Wortis, S. B. Heroin addiction in adolescent boys. *J. nerv. & ment. Dis.* 1951, 114, 19-34.
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- Received June 15, 1965
Revision received September 9, 1965

Differential Diagnosis with the Bender Gestalt Test

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Summary: Forty-two patients, 18 of whom were diagnosed as organic and 24 as having a functional psychiatric disorder, were given the Bender Gestalt test. Both the Hain (1964) and the Pascal and Suttell (1951) scoring systems gave mean scores for the two groups which were different at beyond the .001 level of significance. The Pascal-Suttell also gave a significant difference between means when either patient group was compared with normals. Using a previously established cutoff score for the Hain, 76% of the patients were correctly classified, as compared with 81% by a clinical expert on the Bender.

The working clinician, particularly in a hospital setting, is frequently faced with the problem of trying to differentiate between psychopathology due to organic brain damage and that due to functional psychoses or neuroses. The Bender Gestalt test is frequently used to aid in such diagnoses. The widely used Pascal and Suttell (1951) scoring system for the Bender sometimes has been considered of value in distinguishing between organic and functional states (e.g., Bowland & Deabler, 1956). Other studies have shown it to yield highly similar scores for both of these pathological groups, despite its ability to distinguish between pathological and normal Bender records (e.g., Stoer, Corotto, & Curnutt, 1964). A more recent scoring system by Hain (1964) aimed specifically at identifying those Bender deviations which are characteristic of cerebral disorders. Hain reported that high scores on his system were strongly indicative of impairment associated with brain damage, although the low score group might include some false negatives along with the non-brain damaged categories of functional disorders and normal. The present study is, in part, a cross-validation of the Hain scoring system. The protocols from the present sample of patients were examined also on the basis of Pascal-Suttell scores and the clinical judgment of a recognized Bender expert, in order to compare the results of these methods with those from the

Hain system.¹

METHOD

There were three groups of subjects: organics, functionals, and normals. The organic and functional groups were drawn from the patient population at New Brunswick Provincial Hospital. The 18 organic Ss all had a primary diagnosis of brain damage, and none was classified as mentally defective. They had been given the following hospital diagnoses: 1 neurological imparum, 4 chronic brain syndrome, 3 acute brain syndrome, 3 Korsakoff's syndrome, 1 brain tumor, 1 dentate nucleus atrophy, 1 general paresis, 1 psychosis secondary to disease of the nervous system, 1 cortical degeneration resulting from trauma, 1 grand mal epilepsy with deterioration, and 1 ideopathic epilepsy. The functional group consisted of 24 patients: 2 manic-depressive psychosis, 2 character disorder, 1 inadequate personality, 1 hysterical personality, 1 psychoneurosis mixed, 2 involutional paranoid reaction, and 15 schizophrenia. The diagnoses for both groups were final hospital diagnoses based on psychiatric and neurological examinations; neither the Bender Gestalt nor any other psychological test had been used in arriving at these diagnoses. The organic group was somewhat older than the functional, with a mean age of 44 and 34

¹The authors wish to express their appreciation to Mr. Robert H. Curnutt for his work in sorting the protocols, and for his thoughtful and helpful analysis of his own part in this study.

years, respectively. The groups were matched more closely on WAIS vocabulary scores. The organics had a mean score of 9.61 and a standard deviation of 1.67, and the functionals a mean of 10.37 and a standard deviation of 1.77.

Although the primary focus was on differentiation between the two types of patients, a nonpatient control group of 16 hospital staff members was also included. They did not differ significantly from the functional patients in age, or from either patient group on WAIS vocabulary scores.

Each subject, in all three groups, was given the Bender Gestalt test and the WAIS vocabulary subtest at a single sitting. The order of presentation of the two tests was alternated. All Bender protocols were scored using both the Hain (1964) and the Pascal and Suttell (1951) systems. The protocols from the two patient groups also were sent to a clinical psychologist who is regarded as an expert in diagnosis with the test. He was considered qualified for the role of expert judge on the basis of his authorship of a clinical manual for the Bender Gestalt test (Curnutt, 1957), his contributions to the research literature of the test (e.g., Curnutt, 1953), and the strong personal impressions of one of the present writers who had seen him use the test in a clinical setting. He was unfamiliar with the Hain system, which had just been published before he was asked to sort the protocols, and he is one of those workers who has not found the Pascal and Suttell system useful for differentiating between organic and functional pathologies (Stoer, Corotto, & Curnutt, 1964.) This Bender expert was asked to sort the 42 protocols into organic and functional groups. He was not told how many patients should be in each group. His only information was the age and sex of each patient.

RESULTS

Both the Hain and the Pascal-Suttell scoring systems clearly differ-

entiated between the organic and the functional patients as groups. The difference in group means for both systems was significant beyond the .001 level. The difference in means between the functional patients and the normal group was significant on the Pascal-Suttell scores but not on the Hain. This lack of significance is consistent with Hain's attempt to score only for those deviations characteristic of brain damage, and also was found in his own use of his scoring system.

Because there is no generally agreed upon Pascal-Suttell score to use as a cutting point for separating organic from functional patients, the present data cannot be used for establishing or cross-validating the success of that scoring system for classifying the individual patients. The group means are clearly different, but any cutting point set on the basis of these data would capitalize heavily on the particular nature of this sample. Hain, however, suggested a cut-off score for his system, and, it was cross-validated on the present data. The effectiveness of the cut-off score in separating the two types of patients was compared directly with the separation done by the clinical judge. The official hospital diagnoses were used as the operational criterion for correct classification.

Using Hain's suggested dividing score of eight, 76% of the patients, were correctly classified. There were no false positives, but ten patients with hospital diagnoses of organic brain damage were misclassified into the nonorganic group. The clinical judge correctly classified 81% of the patients. He improperly categorized three functional and five organic patients. These five organic cases misclassified by the clinician were all included in the group of ten misclassified by the Hain scores. They included: 1 Korsakoff's syndrome, 2 acute brain syndrome, 1 brain tumor, and 1 general paresis. The additional five false negatives from the Hain

were: 1 epilepsy, 1 cortical degeneration resulting from trauma, and 1 psychosis secondary to disease of the nervous system.

DISCUSSION

This cross-validation of the Hain scoring system essentially supports the work reported by Hain (1964.) In his sample, 52% of the brain-damaged cases were correctly identified, and in the present sample his suggested cut-off score correctly classified 44% of the brain-damaged cases. There were no false positives in either group. The usefulness of his system, at least as a first stage screening device, seems clearly established.

The Pascal and Suttell system gave significantly higher scores for the brain-damaged group in this study than for the group of functional psychiatric patients. It is clearer, however, that the Pascal-Suttell scores are affected by functional as well as organic pathology. A recent study (Stoer, Corotto, & Curnutt, 1964), using extremely well matched groups of patients, found the Pascal-Suttell unable to distinguish at all between organic and functional patients. It may be that the nature of the functional pathologies involved made the difference. Future studies may cast more light on this.

Either scoring system might be used where there is some strong *a priori* reason to suppose that only brain-damaged and normal subjects are available in the population. A suitable cut-off score for the Pascal-Suttell might be established for such special circumstances. While the Pascal-Suttell scoring system is presently more familiar to psychologists, the relatively fewer and simpler categories of the Hain system make it faster to apply, once learned.

The clinical judge offered a subjective analysis of his "errors." He noted — among other points — the presence of features indicative of organic impairment in records which also presented features primarily associated with functional disorders.

The clinician was asked to imitate the operation of the scoring systems by classifying each record into only one of the two categories. Potentially, of course, the clinician can offer a double diagnosis, something neither of the unidimensional scoring systems can do. The clinician also was forced to imitate the scoring systems by being denied the clues he normally gathers from observation of the exact mode of presentation of the test and the patient's behavior during testing. It was his opinion — which, unfortunately, cannot be checked from the present data — that this limitation impaired his accuracy.

In the present study, the clinical expert did slightly better than the objective scoring system despite the limitations on his performance which are noted above. Not all experts are equally expert, however, as a study by Mehlmán and Vatovec (1956) has indicated. Future studies are needed to tell us more about how to judge among judges, and to investigate what the optimal combination of scoring system and clinical judge might be.

REFERENCES

- Bowland, J. A., & Deabler, H. L. A Bender-Gestalt diagnostic validity study. *J. clin. Psychol.*, 1956, 12, 82-84.
- Curnutt, R. H. The use of the Bender-Gestalt with an alcoholic and non-alcoholic population. *J. clin. Psychol.*, 1953, 9, 287-290.
- Curnutt, R. H. *The Bender-Gestalt test: diagnostic interpretation*. Ann Arbor, Michigan: Edwards Brothers, 1957.
- Hain, J. D. The Bender Gestalt test: a scoring method for identifying brain damage. *J. consult. Psychol.*, 1964, 28, 34-40.
- Mehlman, B., & Vantovec, E. A validation study of the Bender Gestalt test. *J. consult. Psychol.*, 1956, 20, 71-74.
- Pascal, G. R., & Suttell, Barbara J. *The Bender-Gestalt test*. New York: Grune and Stratton, 1951.
- Stoer, L., Corotto, L. V., & Curnutt, R. H. The role of visual perception in the reproduction of Bender-Gestalt designs. Paper presented at the annual convention of the American Psychological Association in Los Angeles, California, September, 1964.

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Holtzman Inkblot Correlates of Creative Potential¹

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Summary: Fifteen female undergraduates were tested with the Myers-Briggs Type Indicator and judged to have creative potential because of their high scores on the intuition and perception sub-scales. They were matched for age and verbal ability with a group having low creative potential, and both groups were given the Holtzman Inkblot Technique. Out of 14 hypotheses, 8 were statistically significant, and one out of seven exploratory relationships was significant. The creative-potential Ss gave HIT responses involving more definite form, color, movement, human content, integration of blot elements, pathognomic verbalization, anxiety, hostility, and abstract content.

In recent years, educators and behavioral scientists have shown an increasing interest in defining, measuring, and stimulating creativity. Although the criteria for judging whether or not a person or an action is creative have not been universally agreed upon, there is a general consensus of opinion as to the characteristics of creativity as an abstract construct. Most definitions include such factors as: having original ideas or actions; responding in ways which are adaptive to reality and which solve a problem; combining objects in an imaginative and insightful manner which goes beyond the limits of the usual thinking of the group; showing unusual rapport with one's unconscious without being overwhelmed by it; breaking with past concepts and reconstructing the field, etc. (Asher, 1963; Eisner, 1963; Haefele, 1962; MacKinnon, 1962). In other words, most definitions of creativity refer to a reality-oriented process of breaking old conceptual systems and forming new combinations of concepts.

There have been several psychometric studies of the personality characteristics of people judged to be creative (Barron, 1953; MacKinnon, 1962; 1965). Briefly, the overall findings are that creative people: (1) prefer complex, irregular, radical exper-

iences; (2) see themselves as pessimistic, bitter, and temperamental; (3) are frequently seen as poorly adjusted; (4) score high on femininity; (5) are judged to be self-aware, intuitive, and open to experience; (6) are flexible and spontaneous, but attuned to reality; and (7) show an effective integration of ego and id and a positive will. These results are generally congruent with the clinical opinions of psychologists who have used projective techniques, such as the Rorschach, to assess creative potential (Klopfer, Ainsworth, Klopfer, and Holt, 1954).

The general purpose of this study is to compare the Holtzman Inkblot Technique (HIT) scores of subjects high or low in creative potential, as measured by their responses on a paper-and-pencil personality test, the Myers-Briggs Type Indicator (MBTI).

METHOD

Tests Used

Two instruments were employed in the present study. The MBTI was used to distinguish potentially creative Ss from those lacking creative potential. This test consists of a series of questions and word pairs requiring forced choice responses. The MBTI is based on Jungian personality typology, and classifies people along four dimensions: extraversion-introversion, sensing-intuition, thinking-feeling, and judgment-perception. MacKinnon (1962) found the MBTI to be the best test in his battery for distinguishing creative Ss from the

¹The authors wish to express their thanks to Wayne Holtzman for furnishing a set of colored slides and other materials used in this study, and to Robert Clarke and Thomas Tutko for their consultation on this project.

general population. Furthermore, two of the scorable dimensions seemed crucial. The creative Ss were characterized by high scores on *intuition*, openness to an indirect perception of the possibilities inherent in situations, and *perception*, openness to experience from within and without, not closing one's mind by making premature judgments.

The second instrument employed in this study was a thirty-card group version of the HIT, an inkblot test of personality which was developed to obviate some of the psychometric problems found in the Rorschach. Colored slides were used to administer the HIT, according to the standard group test instructions (Swartz and Holtzman, 1963). The HIT is scored in a relatively objective way for 22 variables, such as location of the percept, its appropriateness to the form of the blot, degree of movement involved, various content categories, anxiety and barrier scores, pathognomic verbalization, popularity, etc. For this study, the assumption was made that hypotheses derived from the Rorschach literature can be directly applied to the HIT variables, which are presumably similar to their Rorschach counterparts in meaning.

Subjects

From a pool of 130 female undergraduate students enrolled in introductory psychology classes at a state college, 15 were assigned to the creative-potential group and 15 to the non-creative group, on the basis of their MBTI scores. Female Ss were used, as previous research had shown that few male students tested at this college scored in the creative range of the MBTI (Lee, 1963). The Ss in the two groups were equated for age (Mean = 19.0), year in college, and ACT entrance examination English scores.

Procedure

The MBTI was administered to 130 Ss, during their regular class hour, with reassurances that the material

would be held in confidence. A frequency distribution was made of their scores on the sensation-intuition scale. Ss falling in the top 20% in *intuition* (*N* scores above 15), and who scored higher on *perception* than on *judging* were placed in the "high creative potential" category (*Creat*). Those Ss falling in the top 20% of the *sensation* scale (*S* above 23), and with *judging* scores higher than *perception* scores were placed in the "low creative potential" category (*Non-Creat*). Fifteen Ss were selected from each category, according to their availability for testing. They were administered the HIT in small groups (consisting typically of three or four Ss), according to instructions used by Swartz and Holtzman (1963). The MBTI and HIT protocols were coded and then scored in the standard way (Holtzman, 1961; Myers, 1962). The results were analyzed by means of *t*-tests for independent data, except when the range of scores was too narrow to use the *t*-test, in which case chi-square was computed.

RESULTS

Hypothesized Relationships

Fourteen specific differences between the *Creat* and *Non-Creat* groups were predicted, based on descriptions of creative individuals in the standard Rorschach literature (Klopfer, et al, 1954). The hypotheses were evaluated by one-tailed tests of significance, the exploratory relationships by two-tailed tests. The results are summarized in Table I.

It was hypothesized that Ss with *high creative potential* (i.e., intuitive and perceptive) would be characterized by:

- (1) *Greater use of whole blot responses*, as shown by lower *L* (Location) scores on the HIT. As can be seen from Table I, the difference between the *Creat* and *Non-Creat* groups was significant at only the .10 level, although in the hypothesized direction. Therefore, the hypothesis was not supported.

TABLE I — Means and Standard Deviations Obtained Using the Holtzman Inkblot Technique

| HIT VAR. | | <i>Great</i> | <i>Non-Great</i> | <i>t</i> or X^2 | <i>P</i> | HIT Norms (College Students) |
|--|----|--------------|------------------|-------------------|----------|---------------------------------|
| <i>Hypothesized Relationships</i> | | | | | | |
| <i>L</i> | M | 30.33 | 26.13 | <i>t</i> 1.51 | <.10 | M 26.30 |
| | SD | 11.57 | 8.47 | 28 df | | SD 8.61 |
| <i>S</i> | M | .533 | .466 | X^2 .0006 | <.98 | M 1.37 |
| | SD | .805 | .74 | 1 df | | SD 1.27 |
| <i>FD</i> | M | 64.06 | 52.73 | <i>t</i> 2.66 | <.01 | M 54.14 |
| | SD | 10.97 | 12.32 | 28 df | | SD 9.68 |
| <i>FA</i> | M | 20.60 | 19.87 | <i>t</i> .528 | <.40 | M 28.33 |
| | SD | 4.29 | 3.31 | 28 df | | SD 3.85 |
| <i>C</i> | M | 22.66 | 15.73 | <i>t</i> 3.595 | <.001 | M 14.73 |
| | SD | 5.34 | 4.85 | 28 df | | SD 7.25 |
| <i>M</i> | M | 35.07 | 23.33 | <i>t</i> 4.25 | <.0005 | M 25.76 |
| | SD | 5.99 | 8.86 | 28 df | | SD 9.73 |
| <i>H</i> | M | 27.40 | 20.40 | <i>t</i> 2.89 | <.005 | M 18.90 |
| | SD | 7.15 | 6.09 | 28 df | | SD 6.73 |
| <i>I</i> | M | 9.50 | 8.00 | <i>t</i> 1.883 | <.05 | M 4.69 |
| | SD | 2.19 | 2.17 | 28 df | | SD 2.79 |
| <i>V</i> | M | 13.60 | 5.40 | <i>t</i> 2.463 | <.025 | M 2.90 |
| | SD | 11.67 | 5.49 | 21 df | | SD 3.63 |
| <i>A</i> | M | 13.93 | 17.00 | <i>t</i> 1.395 | <.10 | M 14.03 |
| | SD | 6.35 | 5.69 | 28 df | | SD 4.64 |
| <i>Ax</i> | M | 10.70 | 5.07 | <i>t</i> 4.273 | <.0005 | M 7.20 |
| | SD | 4.09 | 3.10 | 28 df | | SD 4.46 |
| <i>Hs</i> | M | 10.40 | 6.60 | <i>t</i> 2.375 | <.025 | M 6.92 |
| | SD | 5.07 | 3.58 | 28 df | | SD 3.96 |
| <i>Sh</i> | M | 14.20 | 12.86 | <i>t</i> .590 | <.40 | M 5.58 |
| | SD | 6.50 | 5.92 | 28 df | | SD 3.76 |
| <i>L = 0</i> <i>+FD = 2</i> <i>+FA = 2</i> | M | .866 | .466 | X^2 2.17 | <.10 | |
| | SD | .67 | .61 | 1 df | | |
| <i>Exploratory Relationships</i> | | | | | | |
| <i>P</i> | M | 8.46 | 6.93 | <i>t</i> 1.86 | <.10 | M 6.88 |
| | SD | 2.26 | 2.26 | 28 df | | SD 2.27 |
| <i>Ab</i> | M | 2.13 | .47 | X^2 4.88 | <.05 | M .29 |
| | SD | 3.38 | 1.08 | 1 df | | SD .70 |
| <i>Br</i> | M | 5.60 | 5.13 | <i>t</i> .503 | <.50 | M 5.75 |
| | SD | 2.09 | 2.95 | 28 df | | SD 2.36 |
| <i>Pn</i> | M | 1.73 | 1.53 | X^2 .53 | <.50 | M 2.33 |
| | SD | 1.58 | .92 | 1 df | | SD 1.81 |
| <i>At</i> | M | 1.86 | 1.26 | X^2 .53 | <.50 | M 1.96 |
| | SD | .97 | 1.33 | 1 df | | SD 1.89 |
| <i>Sx</i> | M | .20 | .133 | X^2 .288 | <.70 | M .20 |
| | SD | .53 | .34 | 1 df | | SD .56 |
| <i>B</i> | M | .20 | .40 | X^2 .0011 | <.95 | |
| | SD | .44 | 1.28 | 1 df | | |

(2) *Greater use of space responses*, as shown by higher *S* (Space) scores. Again, although in the predicted direction, the difference between groups was not significant, by chi-square analysis.

(3) *Greater definiteness of form for the concept reported*, as shown by

higher *FD* (Form Definiteness) scores. The difference between means was significant at the $p < .01$ level, in the predicted direction.

(4) *Greater appropriateness of form or goodness of fit of the concept to the blot*, as shown by higher *FA* (Form Appropriateness) scores. The differ-

ence was not significant, but was in the predicted direction.

(5) *Greater use of color*, as shown by higher *C* (Color) scores. The difference between means was significant at the .001 level, in the expected direction.

(6) *Greater use of movement as a determinant*, as shown by higher *M* (Movement) scores. This difference was significant at the .0005 level, in the expected direction.

(7) *Greater use of human content*, as shown by higher *H* (Human) scores. This difference was significant at the .005 level, in the direction predicted.

(8) *Greater integration of separate blot elements into a larger unit*, as shown by higher *I* (Integration) scores. This hypothesis was supported at the .05 level, as predicted.

(9) *Greater use of pathognomic verbalization*, as shown by higher *V* (Pathognomic Verbalization) scores. This difference was significant at the .025 level, in the predicted direction.

(10) *Greater anxiety*, as shown by higher *Ax* (Anxiety) scores. The difference between means was significant at the .0005 level, as predicted.

(11) *Greater hostility*, as shown by higher *Hs* (Hostility) scores. The difference between groups was significant at the .025 level, in the expected direction.

(12) *Greater use of shading*, as shown by higher *Sh* (Shading) scores. The hypothesis was not supported.

(13) *Higher scores on a combination of variables: L* (Location) score of 0, *FD* (Form Definiteness) score of 2 and *FA* (Form Appropriateness) score of 2. The difference between groups was not significant, by chi-square analysis ($p < .10$), although in the predicted direction.

(14) *Fewer animal content responses*, as shown by lower *A* (Animal) scores. The difference between groups was not significant ($p < .10$), but was in the direction predicted.

It should be noted that the results for every hypothesized difference were in the predicted direction.

Exploratory Relationships

Comparisons of the *Creat* and *Non-Creat* groups for the seven HIT variables for which no hypotheses were offered showed only one positive finding. The *Creat* group gave more Abstract (*Ab*) responses than the *Non-Creat* group, significant at the .05 level, by chi-square.

To summarize, the *Creat* group, with high MBTI scores on intuition and perception, gave HIT responses characterized by: definite form, combination and integration of blot elements, emphasis on color and movement determinants, human and abstract content, deviant verbalization, and high scores on the hostility and anxiety scales.

DISCUSSION

It should be emphasized again that this study is concerned with HIT differences between groups of students scoring high or low on the MBTI variables of intuition and perception, which other investigators have found to be related to creativity. Our sample is made up of young people who may or may not actually produce creative achievements in their lifetimes. We have examined HIT correlates of personality traits which presumably make it easier for a person to be creative; we have not examined actual creative productions.

The results of this study present a coherent portrait of the intuitive — perceptive high creative-potential group of Ss. Compared to the *Non-Creat*, the *Creat* group produced HIT records which were quite congruent with our theoretical expectations. Their responses showed: (1) richer perception and productive imagination (*M*, *H*, and *Ab*); (2) emotional responsiveness in relationships with the outer world (*C*); (3) precision of perception (*FD*); (4) more complex and integrated percepts (*I*); (5) more

signs of emotional disturbance (H_s , A_x , V); (6) but no distortion of reality (FA). The overall picture is one of richness and tension, an ability to go beyond the commonplace and matter-of-fact aspects of the real world, without losing sight of the requirements of reality.

The lack of significant difference between the two groups on the L variable seems to go against the expectation that creative Ss would give more whole blot responses. However, as Allison and Blatt (1964) point out, only cognitively complex and accurately perceived whole responses are related to intelligence (and presumably, creativity). The HIT L score does not take into account the quality of the whole response, which may be the reason why it did not differentiate our two groups. The *a priori* combination of L , FD and FA which was tested in our study did not distinguish the *Creat* and *Non Creat* groups; but this may be because the criterion was too stringent, and therefore, the obtained scores fell within a very constricted range. If the criterion for FA is reduced by one point, while that for FD is increased by one point, a more normal distribution of scores is obtained, and a t -test is now significant at the $p < .05$ level. In other words, some combination of scores which describe good quality whole responses may yet turn out to be a good predictor of creative potential.

A factor analysis of the HIT by Holtzman, *et al* (1961) revealed two factors which seem to fit our *Creat* group. The first factor is defined by HIT variables I , M , H , P , and FD , and presumably indicates perceptual maturity, integrated ideational activity, and awareness of conventional concepts. Our *Creat* Ss scored higher on each of these variables, except for P . The second factor is defined by these variables: V , A_x , H_s , and M , and is interpreted as indicating emotional disturbances affecting fantasy and perception.

Herron (1963) conducted a norma-

tive study of college students using a 30-item HIT. On all nine variables on which we found differences between our groups, our *Creat* Ss are consistently higher than his norm group, while our *Non-Creat* Ss are consistently closer to his norms.

This study raises many questions worthy of further research. Since we have no measure of actual creative achievement, it would be of great interest to follow up our Ss to determine what they do with their creative potential. This would involve establishing criteria of achievement which might be quite different from any we now have. For example, how would we measure creativity in a housewife or a person of average intelligence? We should also repeat our study with a broader range of Ss , e.g., males, adults, etc. Since the HIT is not a paper-and-pencil test, it can be profitably used with children as well as adults for longitudinal studies. Examination of the family environments of children with creative potential, a study of what causes creative potential to increase or decrease in a given child over a period of time, and the relationship between the emotional disturbance of creativity and the similar-looking disturbance of mental illness are all important problem areas which need to be investigated.

REFERENCES

- Allison, J. & Blatt, S. J. The relationship of Rorschach whole responses to intelligence. *J. proj. Tech.*, 1964, 28, 255-260.
- Asher, J. J. Towards a neo-field theory of problem solving. *J. gen. Psychol.*, 1963, 68, 3-8.
- Barron, F. Complexity-simplicity as a personality dimension. *J. abnorm. soc. Psychol.*, 1953, 48, 163-172.
- Barron, F. *Creativity and psychological health*. Princeton, N. J.: D. Van Nostrand & Co., 1963.
- Eisner, E. W. Think with me about creativity. *The Instructor*, 1963, 72, p.3.
- Haelele, J. W. *Creativity and innovation*. New York: Reinhold Publishing Corp., 1962.
- Herron, E. W. Psychometric characteristics of a thirty-item version of the group method

- of the Holtzman Inkblot Technique. *J. clin. Psychol.*, 1963, 19, 450-453.
- Holtzman, W. H. *Guide to administration and scoring, Holtzman Inkblot Technique*. New York: The Psychological Corp., 1961.
- Holtzman, W., Thorpe, J., Swartz, J. D., & Herron, E. W. *Inkblot perception and personality*. Austin, Texas: Univ. of Texas Press, 1961.
- Klopfer, B., Ainsworth, Mary D., Klopfer, W. G. & Holt, R. R. *Developments in the Rorschach technique*. New York: World Book Co., 1954.
- Lee, S. J. An investigation of parental identification in potentially creative individuals. Unpubl. M. A. thesis, San Jose State College, 1963. .
- MacKinnon, D. W. The nature and nurture of creative talent. *Amer. Psychologist*, 1962 17, 484-495.
- MacKinnon, D. W. Personality and the realization of creative potential. *Amer. Psychol.*, 1965, 20, 273-281.
- Myers, Isabel Briggs, *The Myers-Briggs type indicator manual*. Princeton, N. J.: Educational Testing Service, 1962.
- Swartz, J. D. & Holtzman, W. H. Group Method of administration for the Holtzman Inkblot Technique. *J. clin. Psychol.*, 1963, 19, 433-441.
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Evaluating the Child's View of His Parents¹

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INTRODUCTION

During the last few years it has become increasingly clear that a psychological disorder in one member of a family often indicates that other members of the family may also be in need of help. Hence, there has grown up the practice of attempting to diagnose and treat the disorders of the family, rather than those of the individual. If treatment is offered only to individual adults, or to marital couples, it is possible to obtain the relevant information during the diagnostic and therapeutic interviews. Since each individual is being treated in his, or her, own right, there is no need to find out what all the other members of the family think about each other. But when the family is being treated as a whole, Howells (1962), it is essential to gain as complete an account as possible of how each member of the family views all the others. If all the members are old enough to be interviewed, the diagnostic problems encountered are those inseparable from interview techniques generally. If, however, there are young children in the family, the problem of diagnosis is more difficult, since most young children cannot respond adequately in straightforward interviews. A projective technique may therefore be employed in order to discover what the child thinks about his family and in particular how he views his relationship with his parents.

Techniques Available

In spite of the large number of projective methods available, there are very few *picture* techniques which

can be used to explore the child's relationship with his family. The review of projective methods by Rabin and Haworth (1960), shows that the techniques which use pictures as stimuli fall into roughly three classes:

(1) Those which are based upon psychoanalytical principles, like the well-known T.A.T. and C.A.T.; (2) Those which provide an insufficient number of pictures to cover adequately the basic family situations, e.g. Jackson (1952); (3) Tests which are modified forms of "forced choice" techniques, like the Rosenzweig Picture-Frustration Study (1948). Hence it seemed that another picture projective technique would be useful if it were suitable for young children and employed enough pictures to cover the basic family situations. Accordingly, the present author collaborated in the production of a technique called the Family Relations Indicator, (F.R.I.). This technique has already been described, (Howells and Lickorish 1963) and the present paper includes a new method of analyzing and comparing the responses obtained from the Indicator.

The Family Relations Indicator

Briefly, the F.R.I. consists of 33 pictures drawn in black and white to the authors' specifications. They depict the following basic family groups: — (1) A group containing both parent figures; (2) Father and child only; (3) Mother and child only; (4) Child alone; (5) Siblings; (6) Child and baby. The age range of the children shown in the pictures is approximately 7-11 years — except for the baby. The pictures are clearly drawn, without excessive shading, or blurred outlines, and most of them are ambiguous with regard to posture and facial expression. The type of picture em-

¹The author is indebted to Dr. John G. Howells, Consultant Psychiatrist, Department of Family Psychiatry, Ipswich and East Suffolk Hospital, for permission to use the clinical data evaluated in this investigation.



FIGURE 1. Specimen Card from the Family Relations Indicator.
Card No. F.I.

ployed is shown in Figure 1. The six basic situations shown in these pictures are repeated three times. Each of the three pictures is sufficiently distinct from the other two to be accepted by the child as a different picture, although the same basic figures are shown in each. The pictures are presented to the child in the serial order, 1-6 as indicated above and his replies are recorded verbatim.

THE INVESTIGATION

The present investigation into child-parent relationships made use of the Family Relations Indicator and also employed a statistical method of comparing the responses given to the father and mother cards respectively.

Aim

The investigation was carried out in order to see if there was any discernible difference between the father-son and mother-son relationships as described by a sample of boys referred to

a Department of Family Psychiatry.

Data

The data used to investigate these relationships consisted of the responses given by 19 boys to the "father" and "mother" cards of the F.R.I. The protocols were taken *consecutively* from the records with the following limitations. They were given by boys aged between 9 and 13½ years. Each set of responses contained replies to each of the 3 "father" cards and the 3 "mother" cards. (It was necessary to make this condition, as sometimes shortened versions of the F.R.I. had been used.) All the boys had been referred to the Department of Family Psychiatry, Ipswich and East Suffolk Hospital.

Method of Analyzing the Responses

The responses given by the boys to the father and mother cards were analyzed on a linguistic basis. The replies were not "interpreted", nor were symbolic, or hidden meanings

sought after. Hence the task of analysis was fairly straightforward, since the basic requirement was simply a knowledge of English grammar.

Information Units

The replies to each picture were first analyzed into what are called "information units". The "information unit" is a sentence, clause, or phrase, which the child used to describe the picture, or the figures in it, or the relationship between the people in the picture. Reference to the specimen protocol should make clear the nature of these "information units". The solidus, is used in analyzing the typed protocol into "information units".

Sorting of "Information Units"

After dividing each response into "information units", these units themselves are sorted into three groups, as follows: — (1) neutral information units, (2) personal information units, (3) interaction units. At this point a "subjective" element enters into the analysis. This is unavoidable, so the psychologist must exercise his judgment with great care in deciding which "information units" belong to groups (1), (2), and (3). The "neutral information units" are those which simply describe what is in the picture. Thus in response F.1. the sentence "A man is coming through the door" is regarded as a "neutral information unit". It discloses nothing about the man's attitude, or feelings and describes no relationship of any kind. It is purely descriptive. These "neutral information units" are ignored when tabulating the responses. The "personal information units", group (2), are those which describe actions, attitudes, feelings or states of mind that are not specifically directed

him? / Because he is pinching a cake.

M.3. The lady told the little boy not to go with her, / and when his mummy got home / she smacked him / and put him to bed. /

B.3. That little boy is going to get a pint of milk, / he will get it out of the cupboard / and drink it, / and mummy and daddy will smack him / and put him to bed.

M.1. That little boy is peeping over at the book / and snatched the book out of his hand. / Daddy said. "Naughty boy, / you are not having any breakfast." / The boy was angry. /

F.2. The boy said to his daddy, could he go out to play / and his daddy said "No" / so he killed the baby / and went out to play, / and he dumped the baby in a farm / where all the muck was. /

B.1. The boy has broken his mother's teapot / and his mummy came and smacked him. /

Responses of a 7 year old boy to six of the cards from the F.R.I.

(F = father card, M = mother card, etc.)

N.B. The number of the responses correspond to the numbers on the F.R.I. cards.

towards another person. In response M.1. it states, "the boy was angry", but it does not state with whom he was angry. Therefore this is regarded as a "personal information unit". No doubt it is reasonable to *infer* that the boy is angry with father, but the response does not actually say so. Since this method is based upon the words actually used by the child it is not permissible to make inferences about this type of information unit.

The "interaction units", group (3), are usually the easiest to distinguish because they are nearly always in the form of a clause or sentence consisting of subject, verb and object. It is therefore possible to represent the "interactions" between two people in the form of the schema shown in Figure 2.

Referring now to response M.3. in the specimen protocol, it is clear that the last two "information units" are

SPECIMEN PROTOCOL

Response
No.

- F.1. That little boy is going to pour out the tea / and going to get the milk / and got a piece of cake. / A man is coming in through the door / and he is doing to smack him. /
• Why is the man going to smack

"interactions". Therefore they can be tabulated using this schema and are shown in Figure 3.

Relationship Grid

All the "personal information units" and the "interactions" are entered in a "Relationship Grid" which is shown in Figure 4. This Grid contains identification items at the top and then follows a line containing the names of the members of the family. The Grid shown in Figure 4 contains the names, Father, Mother, Boy and Baby, because these are the people mentioned in the specimen protocol. These same names also occur in the column at the left hand side of the Grid. The "interactions" between the family members are recorded by using the schema already described in Figures 2 and 3. The entries are read

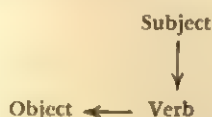


FIGURE 2. Method of Representing the Interaction Between Two People in Tabular Form.

The arrows indicate the order in which the entries are to be read.

| | | |
|-----|-----|--------------|
| | him | She (she) |
| him | | smacked |
| | him | put to bed |

FIGURE 3. Tabulation of "Interactions" from Response M.3. of the Specimen Protocol.

from the top, downwards and sideways to the left. The first entry in the Father column in Figure 4 therefore reads:—"father is going to smack boy". The second entry in the Mother column reads:—"mother smacked boy".

Personal information units are recorded in the appropriate *diagonal* cells of the Relationship Grid. Thus in response M.1. the personal information unit—"the boy was angry," is recorded by placing the verb "was angry" in the cell where the column marked Boy intersects with the row marked Boy, near the bottom right hand corner of the Relationship Grid in Figure 4.

ANALYSIS OF THE PROTOCOLS

A. Analysis of information units

Each of the 19 protocols was analyzed, using a "Relationship Grid" in the manner already described. The responses to the "father" cards dis-

FAMILY RELATIONS INDICATOR RELATIONSHIP GRID

| Name..... | | Date..... | Age..... | No..... | |
|-----------|---|--|---|---------|-------|
| Father | Mother | Boy | Baby | | |
| Father | | says to — could he go out to play | | | |
| Mother | going to smack will smack put to bed says naughty not having breakfast says "no" | told not to go smacked put to bed will smack put to bed smacked | broke teapot was angry pinching cake snatched book went to play | | |
| Boy | | | | | |
| Baby | | killed dumped | | | |

FIGURE 4. Relationship Grid

The "personal information units" and "interactions" given in the specimen protocol have been entered in the Relationship Grid.

closed two kinds of "interactions". One was the action of father towards the boy, which is denoted by (F-b). The other was the action of the boy towards father, denoted by (b-F). The responses also contained "personal information units" concerning father and boy, denoted by F and b respectively. There were also "neutral information units" in the replies. The replies to the "mother" cards also disclosed interactions of the type (M-b) and (b-M); as well as "personal information units" indicated by M and b. There were also "neutral information units" in these responses as well.

The frequency with which each of these "information units" occurred is shown in Table I.

The interactions between father and boy, and between mother and boy are now considered separately. All the verbs in each of the 19 Relationship Grids which disclosed a father-boy interaction, (F-b), are collected together as shown in col. 1 of Table II. The verbs in this column connect father (subject) and boy (object) according to the schema already mentioned, Figures 2 and 3. The figure in col. 2 shows the frequency with which each verb occurs throughout the 19 protocols. The actions of mother towards boy, (M-b) are similarly listed in cols. 3 and 4 of Table II. These two lists of verbs indicate how the boys consider their parents act towards them.

TABLE II. Type and Frequency of Interactions Between Father-Boy and Mother-Boy, as Given in the Protocols by 19 Boys in Response to the Father and Mother Cards of the F.R.I.

| 1 | 2 | 3 | 4 |
|------------------------|-------|------------------------|-------|
| Interaction (F - b) | Freq. | Interaction (M - b) | Freq. |
| greets | 2 | calls | 12 |
| helps | 2 | waits for | 1 |
| talks to | 7 | encourages | 3 |
| rewards | 1 | finds | 2 |
| commends | 2 | restricts | 3 |
| forgives | 2 | demands | 9 |
| orders | 6 | rebukes | 6 |
| demands | 4 | threatens | 3 |
| rebuke | 8 | forbids | 1 |
| warn | 3 | refuses | 1 |
| forbid | 2 | sends home | 3 |
| blame | 1 | hits | 3 |
| refuses | 7 | deprives | 6 |
| ignores | 5 | | |
| displeased with | 2 | | |
| "catches" | 3 | | |
| gives in to | 5 | | |
| agrees to | 3 | | |
| hits | 1 | | |
| deprives | 2 | | |
| | 71 | | 53 |

B. Statistical comparison of information units

A statistical comparison of these two sets of actions was carried out as follows. Each of the verbs in cols. 1 and 3 of Table II is written on a separate small card and then they are well shuffled and subjected to a modified Q-sort. In this investigation the sorting was carried out by a colleague who was asked to sort the verbs into five classes using a "pleasant - unpleasant" polarity. He was asked to

TABLE I. Frequency of the Various Types of "Information Units" Which Occurred in the Protocols Given by 19 Boys in Response to the Father and Mother Cards of the F.R.I.

| Type of "information unit" | Type | Father cards Freq. | Totals | Type | Mother cards Freq. | Totals |
|-------------------------------|-------|-----------------------|--------|-------|-----------------------|--------|
| "interaction" | (F-b) | 71 | | (M-b) | 53 | |
| | (b-F) | 32 | 103 | (b-M) | 23 | 76 |
| "personal" | F | 9 | | M | 21 | |
| | b | 27 | 36 | b | 30 | 51 |
| "neutral" | — | — | 114 | — | — | 120 |
| Total information units | — | — | 253 | — | — | 247 |

TABLE III. The Frequencies of the Interactions Arranged by a Q-sort Into Five Classes.

| 1 | 2 (F - b) | 3 | 4 | 5 (M - b) | 6 | 7 |
|-------|--------------|-------|-----------------|--------------|-------|-----------------|
| Class | Item | Freq. | Class Totals | Item | Freq. | Class Totals |
| I | helps | 2 | 4 | — | — | 0 |
| | forgives | 2 | | | | |
| II | rewards | 1 | | waits for | 1 | |
| | agrees | 3 | | finds | 2 | |
| | greet | 2 | 8 | calls | 12 | 18 |
| | commends | 2 | | encourages | 3 | |
| III | catches | 3 | | refuses | 1 | |
| | talks to | 7 | 25 | restricts | 3 | 5 |
| | gives in to | 5 | | forbids | 1 | |
| | rebukes | 8 | | | | |
| | forbids | 2 | | | | |
| IV | demands | 4 | 27 | hits | 3 | 21 |
| | displeased | 2 | | sends home | 3 | |
| | hits | 4 | | demands | 9 | |
| | warns | 3 | | rebukes | 6 | |
| | blames | 1 | | | | |
| | refuses | 7 | | | | |
| | orders | 6 | | | | |
| V | ignores | 5 | 7 | threatens | 3 | 9 |
| | deprives | 2 | | deprives | 6 | |

put some verbs into each of the five classes, but not to arrange them in any particular frequency-distribution. The sorting therefore differs from that used by Stephenson (1953) where the items are sorted into a binomial distribution. Having sorted *all* the verbs into the five classes, the (F-b) verbs were separated from the (M-b) verbs with the result shown in Table III. The frequencies with which they occur are tabulated in cols. 3 and 6 of Table III. The class frequencies are given in cols. 4 and 7. These two sets of class frequencies now form a 2 x 4 table (by grouping classes with less than five items) which can be evaluated by the chi square test. The results of this evaluation are given in Table IV.

This value of chi square clearly

TABLE IV. Q-sort of Frequencies of Interactions

| Class Interaction | Class Frequencies | | | |
|----------------------|-------------------|-----------|---------|---------|
| | I + II (F - b) | III 18 | IV 5 | V 27 |
| (M - b) | 12 | 25 | 21 | 7 |
| | 18 | 5 | 21 | 9 |

$X^2 = 13$ d.f. = 3

Level of Significance = 1%

indicates that there is a significant difference between the class frequencies of the interactions (F-b) and (M-b). This implies that on the whole, the boys in this group consider that their fathers treat them very differently from the way in which their mothers treat them. An inspection of Table III shows how this differential treatment is meted out. The fathers tend to treat their boys moderately or rather severely, as shown by the frequency of items in classes III and IV. The mothers on the other hand, tend to be lenient or severe, not moderate, as shown by the frequencies in classes II, III and IV. At the extreme ends of the scale both the parents treat their sons similarly.

Just as we can tabulate the father to boy (F-b); and mother to boy (M-b) actions, so we can tabulate the reactions of the boy to father and boy to mother, denoted by (b-F) and (b-M) respectively. The same methods of analysis, tabulation and Q-sort give the results shown in Tables V and VI.

RESULTS OF INVESTIGATION

A. Discussion of interactions

It must be emphasized that this

TABLE V. Frequencies of Interactions of Boys with Parents Arranged by Q-sort Into Five Classes.

| Class | Interactions (b - F) | | | Interactions (b - M) | | |
|-------|----------------------|-------|-------------|----------------------|-------|-------------|
| | Item | Freq. | Class Total | Item | Freq. | Class Total |
| I | — | — | — | present for | 1 | 1 |
| II | apologizes | 2 | 4 | obeys | 4 | 10 |
| | listens to | 1 | | wants to go with | 4 | |
| | explains | 1 | | asks for | 2 | |
| III | asks | 15 | 22 | — | — | 0 |
| | describes | 6 | | | | |
| | reminds | 1 | | | | |
| IV | complains | 1 | 6 | resists | 8 | 15 |
| | in trouble with | 1 | | refuses | 1 | |
| | makes excuses | 4 | | confesses to | 1 | |
| | | | | in trouble with | 1 | |
| V | | | 1 | lags behind | 2 | 1 |
| | disobeys | 1 | | afraid of | 1 | |
| | | | | | | |
| | | | 33 | | | 25 |

investigation shows what the boys think about their relationships with their parents. It does not follow, of course that the actual relationships

TABLE VI. Evaluation of Reactions of Boys Towards Mother and Father.

| Classes | (b - F) Interaction | (b - M) Interaction |
|------------|------------------------|------------------------|
| I, II, III | 26 | 11 |
| IV, V | 7 | 14 |

$$X^2 = 7.75$$

Level of Significance = 1%

are identical with those portrayed here. Projective techniques have frequently been criticized for their lack of so-called objectivity, but it is pointless to criticize them for what they in fact cannot produce. Even if their results do not pass the statistical tests required by some authorities, it does not follow that projective procedures are useless in clinical work (Lickorish, 1965).

The boys' responses indicate that they think there is a very marked difference between the treatment they receive from father and that which they receive from mother. Although the total number of information units is approximately the same for (F-b) and (M-b) reactions, far more *interaction* occurs between father and son than between mother and son (Table

I). The nature of these interactions is also significantly different for the two parents (Tables III and IV). Mother-son reactions tend to be more intense than father-son reactions. The latter contain a high proportion of moderate interactions, according to the frequencies in class III of Table III, col. 4. From an inspection of the entries under the headings (b-F) and (b-M) in Table V it is clear that the boys' reactions to father are very different from their reactions to mother. The entries in class IV show they have a greater "resistance" to mother than to father. Mild reactions which take the form of "requests" are numerous in class III for the (b-F) reactions, but entirely absent from the same class in the (b-M) column.

On the other hand, the (b-M) reactions fall clearly into two contrasted groups. The entries in class II indicate a willingness to cooperate with mother in sharp contrast to the "rebellious" attitudes in class IV. The (b-F) interactions do not show this sharp division of relationships since most of the interactions are concentrated in the relatively moderate class III.

B. Discussion of statistical technique

The investigation just described includes an attempt to devise a method

of tabulating spontaneous verbalizations so that they may be handled statistically. It is notoriously difficult to do this, and the present paper does not claim to have provided a completely satisfactory solution to the problem. The method described owes something to the following authors who have attempted to solve this sort of problem. Jackson (1950) and also Walton (1959) used nosological categories by which to analyze the projective responses obtained from normal, neurotic and delinquent children. Bene (1957) used a numerical coding system for a similar purpose. Jackson, Riskin and Satir (1961) have analyzed the content of a family group interview using the categories of "interactional dynamics" and "communication." Howells (1962) suggests using a set of "five dimensions" for classifying the data about the family. Strupp (1957) has analyzed and scored the psychotherapist's verbalizations along a different set of five dimensions. Templin (1957) has described a method of analyzing children's language, whilst more detailed analyses of verbalizations have been carried out by Bernstein (1962) and by Goldman-Eisler (1954).

Among the criticisms that may be leveled at this method is the fact that a subjective element is bound to enter into the analysis since there are no hard and fast rules for analyzing responses into "information units" or for distinguishing between interactions, personal and neutral units. But this objection is probably not as serious as it appears to be at first sight. The "interactions" are statements which record what "A" does, says, thinks, or feels with respect to "B", where "A" and "B" are both persons. Since the grammatical relation of A to B is simply that of subject to object, it is usually quite easy to discover and tabulate the relevant verb. If "B" is not a *person*, but a *thing*, then the activity expressed by "A" may be regarded as a "personal" statement, indicating "A"'s mental,

or emotional state, and again, it is easy to isolate the word describing this.

Undoubtedly, even two experienced psychologists would not always agree about the category into which a given "information unit" should be placed. Yet it is reasonable to suppose that careful discrimination on the part of the assessor can reduce to a minimum, the arbitrary element which is inevitably present in this kind of assessment. A further safeguard against an over-subjective classification is to regard as "neutral" any "interaction" or "personal" unit about which there is appreciable doubt.

The comparison of sets of interactions by the modified Q-sort technique introduces its own set of possible errors. These arise mainly as a result of sorting the various "information units" into five classes. A binomial distribution cannot be employed since there is no reason to suppose that the units will form a graded series. On the other hand, there are points in favor of this method. It does retain the original meaning of the sentences as given in the protocols. It does *not* require a *psychological interpretation* of the responses, since classification and tabulation are carried out on a purely grammatical basis. The Q-sort technique is being increasingly recognized as a method of arranging spontaneous verbalizations in a form suitable for statistical analysis. The qualitative aspects of the comparison are not lost as a result of the statistical treatment.

SUMMARY

The practice of accepting the whole family for the diagnosis and treatment of behavioral disorders, is now well established. It has shown the need for projective techniques which will disclose intra-family relationships as well as the personal characteristics of the individual. The use of such a technique, the Family Relations Indicator, to investigate father-son and mother-son relationships has been

described. A method of evaluating the replies obtained by this projective technique has been worked out. The responses are analyzed first into information units and subsequently into interactional, personal and neutral units. The units are then analyzed grammatically and recorded in an $n \times n$ table called a Relationship Grid. The units are subjected to a modified Q-sort technique and arranged in five classes. The protocols may then be compared statistically with one another.

This method of analysis retains the meaning of the responses after they are tabulated, does not require any *psychological interpretation* of the replies, but relies upon a grammatical analysis of the responses. The analysis is facilitated by the fact that children's language is usually simple in structure.

This method was applied to the responses given to the father and mother cards of the F.R.I. by 19 boys from a clinical population. The analysis disclosed a significant difference between the reported action of father towards boy and mother towards boy. A similar significant difference was also demonstrated between the boys' reactions to father and mother.

REFERENCES

- Bene, E. The objective use of a projective technique. *Brit. J. Educ. Psychol.*, 1957, 27, 89-100.
- Bernstein, B. B. Social class, linguistic codes and grammatical elements. *Language and Speech*, 1962 5, 221-240.
- Goldman-Eisler, F. A study of individual differences and of interaction in the behavior of some aspects of language in interviews. *J. Ment. Sci.*, 1954, 100, 177-197.
- Howells, J. G. The nuclear family as the functional unit in psychiatry. *J. Ment. Sci.*, 1962, 108, 675-684.
- Howells, J. G. & Lickorish, J. R. The family Relations Indicator. A projective technique for investigating intra-family relationships. *Brit. J. Educ. Psychol.*, 1963, 33, 286-296.
- Jackson, D. D., Riskin, J. & Satir, V. A method of analysis of a family interview. *Arch. Gen. Psychiat.*, 1961, 5, 321-339.
- Jackson, L. Emotional attitudes towards the family of normal, neurotic and delinquent children. *Brit. J. Psychol.*, 1950, 41, 35-51.
- Jackson, L. A test of family attitudes. London: Methuen, 1952.
- Lickorish, J. R. *The contribution of psychological tests to child psychiatry* (in) Modern perspectives in child psychiatry, (ed.) Howells, J. G. Edinburgh: Oliver & Boyd, 1965.
- Rabin, A. J. & Haworth, M. R. *Projective techniques with children*. New York: Grunc & Stratton, 1960.
- Rosenzweig, S. *Picture Frustration Study*. St. Louis: 1948.
- Schneidman, E. S. *Make-a-picture story test*. New York Psychological Corporation, 1947.
- Stephenson, W. *The study of behavior*. University of Chicago Press, 1953.
- Strupp, H. A multidimensional system for analyzing psychotherapeutic techniques. *Psychiatry*, 1957, 20, 293-312.
- Templin, M. C. *Certain language skills in children*. University of Minnesota Press, 1957.
- Walton, D. A children's apperception test—an investigation of its validity as a test of neuroticism. *J. Ment. Sci.*, 1959, 105, 359-370.
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Received April 29, 1965

Revision received August 26, 1965

Interaction Testing: An Engaged Couple of Drug Addicts Tested Separately and Together¹

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Summary: Two young addicts, admitted to hospital for withdrawal of heroin and cocaine, were tested in the course of a research project. When it became known that they were engaged to be married they were re-tested together on the Similarities sub-test of the WAIS, and the individual Rorschach tests were followed by a common performance of the Z-test. The test results are given and discussed. Both patients had a history of promiscuity and prison, and the results of individual testing raised considerable doubt about the suitability of the marriage. Interaction testing, however, gave clearly a much more hopeful picture. It indicated how these two young people were likely to influence each other, what efforts they made to meet each other and how far they were prepared to go. It appeared that there was a mutual give-and-take and that they were able to lend each other positive support. In the "testing together" situation the interaction between the two became apparent in their responses. The technique might prove valuable in exploring the dynamics of human relationships.

Emphasis is noticeably shifting from the individual to the community and to the patient as an integral part of his environment. It has become a truism to say that human relationships are of paramount importance and that faulty relationships are at the root of a great many if not all disturbances. Psychiatrist and psychologist often suspect a faulty relationship with a specific person, e.g. spouse, mother, lodger, etc., to be the main cause of the patient's trouble but clinical interviews and individual testing do not always reveal the whole situation. It would be profitable to be able to explore these interpersonal relationships through testing.

Roman & Bauman (1960) described an attractive technique for "Interaction" testing. Their method was to test two or more individuals (e.g. husband and wife, mother and son) first separately and then together with the same psychological test. Krauser (1964), independently, expounded the same idea. It seems surprising that the possibilities of "Interaction" testing have not been more extensively investigated.

Projective techniques reveal unconscious mechanisms and dynamics within the individual but prediction of overt behavior from the test results is not yet satisfactory. Interaction testing may be one way of achieving a higher degree of reliability. It is generally assumed that if people are together some interaction between them takes place. If one is interested in the relationship between two people and tests them first individually and then together one may hypothesize that the changes which appear in the results of "testing together" are due mainly to the interaction between the two people: responses may change quantitatively or qualitatively, defences may break down or may be reinforced, anxiety may appear or disappear at certain points; in short, a picture of the dynamics of the relationship may unfold. In the "testing together" situation one witnesses a sample of actual behavior which will be reflected in the test results and these, together with the results of individual testing, might therefore provide a safer basis for predictions than inferences drawn from individual records alone.

A large psychiatric hospital on the outskirts of London offers for a number of reasons few possibilities for Interaction testing but when the op-

¹Based on a paper given to the British Rorschach Forum and Society for Projective Techniques at the Summer Conference, London, June, 1964.

portunity arose it was taken eagerly. Jim and Jessie presented here are two young drug addicts tested individually in the course of a study on drug addiction. When it transpired that they were engaged to be married they were tested together with a view to seeing

1) to what extent the characteristics of the individual test responses were preserved, had changed or disappeared,

2) whether the assumed dynamics of the interpersonal situation were reflected in the test responses,

3) whether predictions, if any, from the individual protocols as to the future of the relationship between the two were confirmed by the "testing together",

4) whether the "testing together" protocols provided complementary or new evidence and would allow predictions to be made on a broader and more tangible basis.

Tests and technique

Individual testing of Jim and Jessie after withdrawal of drugs and when their discharge was approaching had already been concluded. They agreed to come again and be tested together. The "testing together" took place within a week of the first session. They were first tested together on the Similarities sub-test of the WAIS, which they had previously been given individually. A full Rorschach record had been taken from Jim and Jessie separately but, envisaging difficulties in a repetition of the Rorschach test, it was decided to use the Z-test for the Interaction testing (Zulliger-Tafeln-Test), (Zulliger, 1951). Its 3 cards are similar to the Rorschach cards but distinct from them. Readers not familiar with the test are referred to the literature (Gladston, 1960; Gladston & Hagenauer, 1960; Morali-Daninos & Canivet, 1960; Salomon, 1962; Semeonoff, 1963; Zulliger, 1962). Interference and questions were kept to a minimum. Only if the answers differed in the Similarities test were the patients asked "which one is it?". In the

Z-test, carried out the next day, no questions were necessary in the performance proper. The enquiry was carried out in the usual way. It is of interest that Krauser who, some months after the testing of Jim and Jessie took place, published his paper on a "couples' Rorschach" (Krauser, 1964), mentioned difficulties arising out of the repetition of the Rorschach test and suggested that "it might be well to consider testing in one setting with the Rorschach and in the other with another set of cards such as the Howard Ink Blots".

Case histories and test behaviour

Jim, 23 years. Parents alive. Father a skilled worker in the catering industry. Converted to strict religious sect. Very rigid in religious views and intolerant of others. Mother followed father in his faith but more tolerant. Jim youngest of three brothers. Born with club foot. Several operations between 4 and 6. Happy, attractive child, won grammar school place. At 13 fractured both hips in accident. Since then said to have changed, became disobedient and rebellious and had to leave school. Jim himself maintained that the change occurred after a homosexual master had irritated him. Went to Technical College and passed five subjects O. level. Left college at 18. Taken on stealing expedition by older man. Put on probation. At 19 left home after row about his behaviour. Worked as a clerk for six months, his longest period of work, otherwise National Assistance. At 19½, a gigolo for a season at holiday resort. Drinking heavily. Prison for being drunk and disorderly. At 21 started smoking hemp and after a prison sentence, changed to heroin and cocaine. At 23 went home and carried out drug withdrawal at home. Kept off drugs for two months, then relapsed. Early in the year met Jessie. Living together.

Jim was a good-looking, rather charming and pleasant young man. Throughout the testing he seemed to enjoy using his intelligence. He often

became introspective, examined his responses and considered the relevance of what he said or did. He seemed anxious to talk about himself and to welcome the opportunity to discuss his future. He spoke about his conflict over not wanting to be like everyone else and yet feeling that now he must settle down to an ordinary job.

Jessie, 22 years. Parents divorced when Jessie was three years old, father faded out. Mother remarried to fish monger. Four half-siblings. Step-father reported that mother was dutiful but unable to give natural feelings; Jessie was an affectionate child, wanted to be the baby when playing with others, always noticeable lack of tenacity and quickly changing interests. Jessie left secondary modern school at 15, one year pre-nursing course but found "temperamentally unsuitable". At 16 started series of varying occupations, shop assistant, office, coffee bar. At 17, boy friend who gave her up. Left home, had various affairs, living with both sexes. Started smoking hemp. After two months moved on to heroin and cocaine. At 20 on remand for possessing hemp; three times more later. After each crisis accepted back home, promised to reform, got herself a job but wandered off again. Promiscuous, even professional. At 22 met Jim. Since then inseparable. Miscarriage in the autumn. Regular supply of drugs since November 1963 and admitted to hospital together with Jim.

Jessie was a petite young person

with lively eyes and a gamine quality. In all the sessions she went out of her way to be obliging and polite and to comply with test instructions. She talked freely about taking drugs, having been to prison and having had affairs with a number of men. She appeared to be convinced that she would be able to keep away from drugs, would work, marry, have children and lead a happy, normal life.

Intellectual aspects and sub-test Similarities of the WAIS

(Jim alone, Jessie alone and both together).

T.A. will be used for "Testing alone".

I.T. will be used for "Interaction Testing".

Jim, WAIS, Doppelt's formula (Doppelt, 1956) I.Q. 121, Vocabulary weighted score 19 (maximum) "very superior".

Jessie, WAIS, Doppelt's formula I.Q. 97, Vocabulary weighted score 10, "average".

It will be seen from these figures that Jim's intellectual level appeared to be appreciably higher than Jessie's and that the difference between their vocabulary score was considerable. His knowledge of vocabulary was wide and correct whereas hers was limited and vague. She was also inclined to misuse words or give them a meaning of her own.

Only the Similarities responses of particular interest will be given in full.

| | | He | She | Both |
|--------------------|---|----|-----|------|
| 10. (Poem-Statue) | | | | |
| He Alone | Both works of art. | | | |
| She Alone | A poem is a verse and I suppose you can write a poem about a statue, that is the only way I can put it. | | | |
| Both Together | He: "Works of art." (She agrees.) | 2 | 0 | 2 |
| 11. (Wood-Alcohol) | | | | |
| He Alone | Do not know (?) I think alcohol is sometimes distilled from wood. It is not my strongest subject though. | | | |
| She Alone | You can get juice from a tree which people drink . . . I do not know whether this is 100%. | | | |
| Both Together | He: "Alcohol is derived from wood." She: "I cannot give an answer." He: "Alcohol is derived from wood." | 0 | 0 | 0 |

12. (Praise-Punishment)

He She Both

He Alone Both forms of judgment on a person to show whether one is good or bad. Both rewards.

She Alone Two actions you can do to a person.

Both Together He: "Both a judgment of something somebody does."
(She remains silent.)

He: "A judgment of something somebody does."

(She agrees.)

2 0 2

13. (Fly-Tree)

He Alone Do not know (?) Perhaps some seeds have wings. Perhaps how they start; like an egg and seed. I do not know how they start. Cannot think of anything more dissimilar. (What did you say about them both starting?) A fly starts as an egg laid in a joint of roast beef and a tree starts as a seed (?) alike). They start very differently from how they end up. Both go through stages where very much different stages, are very distinct stages.

She Alone They are not.

Both Together She: "I do not understand.

He: "They start in the same way as egg and seed.

Flies come from eggs and trees come from seed."

... "Both start life in the same way." (?)

He: "Both go through definite stages."

She: "I cannot see the point, the logic."

0 0 0

Raw Score

Weighted Score

Pro Rata Verbal I.Q.

He Alone

20

13

118

She Alone

17

12

112

Both Together

20

13

118

The T.A. results show that Jim is more longwinded than Jessie, has some difficulties in formulating what he has in mind and that the end result can be clumsy and vague. Jessie could not find any response for items 10 and 12 which may have been beyond her intellectual capacity but in I.T. she accepts Jim's correct responses, easily for 10 and with some hesitation for 12. For "wood-alcohol" Jim repeats his irrelevant response but Jessie does not follow him. She seems to be aware that something is wrong and may also know her limitations. In the last item, "fly-tree", Jim was helped by the prodding which was applied in T.A. when it was not known that retesting would take place. He mentions the word "life" without reaching the correct response and does not get further than some rather nebulous thinking about "stages". Jessie says immediately that she cannot understand the question and this time she is not prepared to give in or

compromise. She has the courage to say that she cannot follow Jim's reasoning.

Jim's weighted score in T.A. was only one point above Jessie's. One wonders whether Jim's intellectual functioning was impaired at the time of testing or whether Jessie had never used her intellectual capacity to the full. If, following Roman & Bauman's procedure, the I.T. product was scored as though it had been obtained from one individual, Jim's score remains the same as in T.A., whereas Jessie's score goes up a little (3 points in the raw score). Jessie, therefore, has profited slightly but there is no common intellectual improvement through working together. One might infer that Jessie is prepared to accept intellectually from Jim but that he does not accept from her. In the marital situation he may remain unaffected and insist on his intellectual superiority. Nonagreement on a response is a negative feature according to Roman

and Bauman. One may hold, however, that it has not necessarily only negative aspects: to refuse agreement to a poor response of one's partner (item 11) and not to follow his vagaries of mind (item 13) can be taken as a sign of strength. There seems to be a healthy limit to Jessie's acceptance of Jim's intellectual dominance.

Main features of the Rorschach records

Jim's record was disappointing. His output was low (R 13) but he elaborated at great length on each response. He responded mainly to the whole blot (W o/o 77) without achieving anything out of the ordinary and was worried if he could not integrate the different parts. There was general constriction (M:sum C = 1: 2½), the only human movement response was projected on an animal and no straightforward human percept was given. He criticised the blots, saw things "tattered" and "frayed", and voiced an intense preoccupation with methods of torture and death (mainly card IV but also III). There was emphasis on "legs" (his congenital clubfoot and leg accident in adolescence?) and signs of early homosexual experience, ("satyr, elfin-boy, rabbit" on card VII). On the whole, however, Jim responded to the stimulus inherent in the blots and erred through lack of flexibility and imagination rather than through losing contact with reality. Card X was the only one on which he commented favorably. He was able to integrate the colors into the feminine "flower" concept without achieving anything outstanding.

Jim's record is immature and not of the quality one might have expected from his intellectual abilities. His intellectualisations are arid, he is overcritical, intolerant and rigid. He has a strong need for genuine human relationships but, if at all, can only achieve them at great cost to himself. When things look bright he appears to be able to carry on, yet his severe hostile and sadomasochistic impulses

cause anxiety and guilt feelings which have a paralysing effect on him. If unrelieved they could lead to his employing psychotic defences or resorting to drugs again.

The impression Jessie gave in conversation was that of a sociable, somewhat superficial, immature and labile person who made contact easily. The Rorschach record, however, although dilated, was distinctly introversal (M:sum C = 10: 4½). Productivity was high (R 41) and she showed no particular drive towards relating the different parts of the blots (D o/o 76, M > W). Only cards VI, VIII and X produced no human movement response. The three movement responses on card IX, rare on that card but perhaps not unusual in addicts (Kaldegg, 1954), had a dream-like quality. Color responses, on the other hand, came with difficulty, there was color symbolism inextricably linked with movement ("the colors meaning movement to me", card X), a color projection on an achromatic card (IV) and in the sorting procedure after completion of the test no amount of prodding and help produced color sorting or even the word "color". A feeling of "being drawn in" was expressed several times. Pure "c" and 2 orgasmic responses suggested strong sex drives and oversensuousness, and mood swings were indicated in some responses. Strongly on the positive side were Jessie's fast and mostly very clear perception and her power of recovery which was most striking on card VI where she alternated between poor (1, 3, 5) and satisfactory responses (2, 4, 6).

Jessie's record showed potentialities beyond what one might have expected from superficial contact with her. She is active and creative in phantasy, and sensitive with a tendency towards passive, dependent behavior. Daydreams and wishful thinking may take the place of action and serve as a refuge in difficulties. Tension is high and there may be experience of early rejection resulting in a need for contact

and affectional satisfaction. Anxiety is tolerated with difficulty. Her sex urges and sensuousness are very strong and a constant danger to her. Depression may be connected with a realization of the threat. Her emotional reactions are odd and unpredictable. The emo-

tions are, however, surprisingly well controlled and she is not as easily outgoing as she appears to be.

Comparing both Rorschach records, it would appear that Jessie is less disturbed than Jim.

Jim dominated the situation and

ZULLIGER-TAFELN-TEST (Z-TEST)

JIM AND JESSIE TOGETHER

CARD I: (Achromatic, rather similar to Rorschach card I, but perhaps a little more unpleasant. Popular responses, according to Zulliger: beetle, crab.)

Responses

Comment

- 10" \wedge 1. He: a crab
She: I don't like ...
He: Looks like a crab
She: Something sinister. Eyes, holding the hands up.
He: It looks like a crab to me.
She: A diseased crab ...
- \wedge 2. you know, an insect which attacks you, a diseased insect.
He: Possibly, it's got two little suckers. A cross between a vampire bat and a crab, not pretty.
She: I don't like it at all, there seems to be something there which draws the attention to the head.
He: How does it move? Crawling? It does not bother me ... not particularly pretty.
She: It is used to live on human beings.
He: Blood sucking but not necessarily human blood.
She: A parasite.
He: Blood sucking.
She: A sinister face ... [summing up] bloodsucking parasitic insect.
(Anything else?) [she points]
- Jim opens with the easy, popular "crab." Jessie obviously has an unpleasant association but hesitates to voice it.
He does not perceive anything but a crab and reaffirms it.
The "eyes" are rather prominent on that card, which weakens the paranoid connotation. Jessie may feel uneasy in the 3-cornered situation under the eyes of the examiner.
It is doubtful whether he sees any details.
The "hard" crab changes into an insect. Does the insect spread disease or is it diseased? This is not clear but it is a dangerous creature.
He is beginning to participate in her concept in giving details how the attack takes place, but rigidly cannot get away from the crab.
The way she expresses herself suggests that, as in the Rorschach test, she physically feels herself "drawn in."
He is preoccupied with means of locomotion—perhaps again his early handicap—but denies that he is worried. He represses impulses.
The threat is directed towards human beings.
He is over-precise and would like to exclude that threat but is explicit about the method of attack and introduces "blood."
In spite of her vague and restricted vocabulary she uses the correct word and avoids mentioning blood.
He insists on his response and the emphasis on the method of attack.
She sums up with a compromise.

Responses

- A He: Little legs.
 She: Horrible flesh hanging at the back [bottom middle]
 He: I just thought it was marking ... it probably spreads disease.

287"

never accepted outright anything that Jessie said. He repeated the Rorschach pattern of clinging rigidly to a Whole response and becoming sado-masochistic in his elaborations. The final "spreads diseases" reminds one of the "fly laying eggs in a joint of beef" in the Similarities test: the paranoid's fear of contamination or the depressive's feelings of guilt? Jessie had not seen anything diseased in the Rorschach cards and only on card IV had not produced more than one response.

CARD II: (Chromatic, combination of Rorschach cards VIII, IX, X, somewhat cruder in color; top red with white inside: sometimes seen as Indian temple or some sort of building; green patches both sides: fish, greenery; two orange-brown areas at the bottom: beetles, ants, caterpillars, bulls.)

She: Oh, it is nice ...

- 5" A 1. She: A house with garden in front and trees in front, a festive picture.
 He: What are these 2 things? [bottom brown] To me it does not look at all like a house ...
 45" A 2. It looks like 2 caterpillars at the bottom, what the rest is, I don't know what relation it bears.

She: We can't agree ...

He: Two caterpillars, the rest has no relation, it should not be there.

She: You can't see the roof of the house and the front door?

He: [laughs] Front door? Too many pieces coming out ...

Comment

Again legs as in the Rorschach!

She seems to suppress a sexual, vaginal concept which this area suggests.

He refutes her response and forgets the "legs." The sudden awareness of shading may express anxiety connected with that sexual area. He comes back to the Whole response and the creature contaminates whatever it comes in contact with.

It seems as if he had put his "badness" into her. She was prepared to accommodate herself to him but was also not quite at ease and repressed a number of responses which might perhaps have led her gradually to a recovery.

This heavily shaded card then and perhaps the anxiety aroused by the new situation had a dysphoric effect on both and in working together they arrived at a solution in which they both expressed the threat they felt from the environment.

Jessie is pleased and quickly produces an imaginative, perceptively not entirely adequate response which takes in the whole blot, colors, white space and vista.

Jim ignores her response and is attracted by the bottom brown (according to Salomon common in homosexual men!). He rejects Jessie's "house" and takes a long time before he perceives the brown parts as the popular caterpillars in which, as the enquiry shows, his need for contact and affection is stronger than the pressure of his drives. As in the Rorschach test he is concerned with a meaningful relation but cannot make it.

Jessie is severely disappointed that they cannot agree and he cannot see the "festive picture" which presumably means wedding and matrimony to her.

He cannot see anything but caterpillars and rejects the sour grapes, the relationships he cannot make.

This time Jessie does not give in easily—too much is at stake. She prods.

He laughs at her, criticizes her response and does not want to accept what comes from her.

- ^ 3. It could be a fireplace, the red part the fire, hearth and wall at either side of the fire.

She: I agree it could be, it gives you the same feeling as the house.

He: The inside of the house.

She: It is not nasty.

He: No, the colorings are quite friendly, fireplace with surroundings.

She: Hearth in front and green wallpaper, green distempered wall.

Perhaps, however, he has sensed the danger of overstepping the limit of her endurance for his sadism and he is suddenly able to evolve a concept which is very near to hers yet his own.

Jessie hastily agrees even if, as it seems, she cannot yet perceive it. The fireplace is as good as the house, it stands for the same thing.

By insisting that it is the inside of the house he makes quite sure that it is his response and not hers but also shows his desire for security and warmth.

She still cannot see it but wants to know what feeling tone he attaches to it.

His answer is reassuring and she then sees what he sees with the addition of some practical detail in which she mixes up wall paper and distemper, excludes the "hot" red and emphasizes the cooler green, the color of hope.

184"

Enquiry

1. She: [red = house] The green is fir trees, earth in front and a path to the front door [S], you see this opening [S] and the hall beyond? Roof, warmth.
 2. He: caterpillar, general shape, it looks furry (?) They are just there, it could be one only.
- add. She: [caterpillars] It could be a rug in front of the fire ...
- add. She: [caterpillars] It's more like two animals charging at each other, two buffaloes, the heaviness, stocky.

An inviting house and Jessie expresses her feelings clearly.

Jim is influenced by the shading and sees no interaction between the caterpillars. He misses an easy opportunity to relate parts of the blots.

She also makes use of shading but integrates it with the fireplace.

Jim's weak and immobile caterpillars are transformed into charging buffaloes — a much more powerful but also more masculine concept.

On this colorful card Jim meets Jessie apparently on his own terms but by now one begins to suspect that she is able to make him believe that he has the lead. The interaction was beneficial to both. Jessie in the use of colors showed a stronger and warmer

emotional response than in the Rorschach test and Jim greater freedom in the way he built up a meaningful whole. The concept itself is promising for an engaged couple. They both seemed satisfied and happy.

CARD III: (Black and red, rather similar to Rorschach card III. Two large black figures: humans; small outside red figures: children, dwarfs, etc.; center red: moth, butterfly.)

4" 1.^ He: Like a Japanese painting.

He is in first with a sophisticated, vague color response showing a rather forced emotional adjustment.

15" 2.^ She: Can you see two people dancing?

She reacts to the human movement suggested by the card, does not want to force it upon him and prods gently.

He: Oh yes!

She: These [arms] emphasize the movement . . .

3. Δ He: Like two trees come to life and kind of fire ritual.

She: You think one is a woman and one a man?

He: No, you can't tell the sex: trees.

4. Δ She: Two little men . . . [outside red]

5. Δ He: No, two flames from the fire dancing with them.

She: It is happy.

He: I love the little flames.

She: Sleeping caps . . .

123"

Enquiry

3. He: The trees uprooted themselves and are walking along.

She: Sort of tree men, head, arms, legs, root here.

He: Both arms, the other leg is taken for granted, they are dancing round the fire. (What could they be?)

She: Just creatures.

- 4.5. He: It looks like little bears.

She: Two little flame men in baggy trousers . . .

He: Rompers . . .

She: Sleeping suits . . .

He maintains that he can see it but when she becomes more explicit he changes her percept.

The "trees" are a self-assertive but inhibited concept. He can only react to the movement after he has de-personalized the men. Using the red he adds an intellectualized, emotional element.

She asks her second direct question in which she indicates that she sees people and not trees and may be more interested in sex *per se* than in emotional involvement. A sexual invitation?

He is afraid of sex: the trees are safer.

Again she correctly sees people and

again he rejects and depersonalizes them, reacts to the color and intellectualizes it. Perhaps he "plays with the fire" in life!

They are both happy but her closing remark is an association with sleep and she had given three rather similar responses in the Rorschach test.

A movement response perhaps inspired by Walt Disney but nonetheless showing a drive towards independence and freedom. In a superb compromise she combines men and trees.

He is getting nearer to a human concept and the movement is becoming faster.

She still sees people. He had rejected her idea of different sexes and she does not want to commit herself.

Similarly to the "trees" the "flames" change into living creatures.

She again compromises by combining his original "flame" with her human percept and she adds a well seen detail.

He cannot accept her "baggy trousers" but they help him to discard completely his original depersonalization and to arrive implicitly at a human percept—a child.

She brings the clothing in agreement with the "sleeping caps." Does she think of sleep or of children she would like to have?

Interaction on that card has become strong. Jessie initiates a direct interchange of ideas with Jim. She asks him questions, prods and leads him gently out of his severe inhibition and difficulty in establishing genuine relationships. She arrives at successful

compromise solutions by fusing her percepts with his. Sexually he has a restraining influence on her, emotionally he makes her more outgoing.

DISCUSSION

When Jim and Jessie were first seen

in the course of a study on heroin and cocaine addiction in young people the interest centered mainly on the personality factors which had made them susceptible to addiction, their present attitudes and resources, and their chances in the future of a more adequate adjustment. Once it became known that the two intended to marry each other the problem of compatibility arose. Both had a history of "hard" drug taking over at least two years, had been to prison and were bisexually promiscuous. Would the cumulative effect of that background, and everything that caused it, lead to failure in the marital situation or was there perhaps something in the two, which, when joined, would make them better able to overcome their weaknesses?

In individual testing Jim had appeared to be more disturbed than Jessie. She had shown greater resources, better access to them and more resilience. Could one predict how far Jessie would be able to accept Jim's often arid intellectualisations and a perhaps constant assertion of his intellectual superiority? How much could she tolerate of his sadism? Conversely, where might Jim exercise restraint? Would he find Jessie's intellectual indifference bearable, and could he fulfil her apparently exaggerated demands for affection and sexual satisfaction? To these questions the T.A. seems to give no definite answer. As to marriage, T.A. together with the case histories would probably lead to a negative advice.

Interaction testing, however, seemed to give a much clearer and more hopeful picture. Jim was unbending in asserting his intellectual superiority and Jessie in admiring and accepting it strengthened his ego. She ceased, however, to give way when his thinking became irrelevant, and in a life situation her refusal to be a blind follower might save them both from disaster. She was also very cautious in not forcing the issue when her responses were better than his. I.T. indicated that

the intellectual discrepancy presented no real danger. The individual characteristics of the T.A. were preserved in the I.T. but not always entirely in their original form. Some were toned down: Jessie who had given orgasmic responses in her Rorschach did not pursue sexual concepts in I.T. and Jim who had wallowed in details of torture did not push his sadism any further when he sensed the danger of upsetting Jessie too much. He abandoned his scathing attitude and was able to agree with her on a mutually satisfying solution which he might well never have reached without her help.

Other features changed for the better under one's very eyes: Jim would not accept Jessie's ideas directly but she possessed the gift of making him believe that her ideas had originated with him and she was also a past master in compromise. Under her influence he became more secure, freer and better able to adjust to people and circumstances while he restrained her sexually and made it possible for her to find more adequate emotional outlet. I.T. indicated, as T.A. could not have shown, how these two in a life situation actually influenced each other, what efforts they made to meet each other and how far they were prepared to go. Interaction between the two brought out positive traits and they were able to lend each other mutual support. I.T. revealed, therefore, that these two young people were after all not as badly matched as it seemed and that their marriage had some chance of success — a different and better founded prediction than one arrived at from individual testing.

Jim and Jessie were discharged a few days after testing. From a follow-up 1½ years later it was learned that they were married, were still off drugs and that Jim had been in constant employment: they had a six-months-old baby and were both "very happy indeed."

CONCLUSIONS

1. All the individual characteristics of "Testing alone" were preserved in Interaction testing, though some were modified.

2. The dynamics of the interpersonal situation were clearly reflected in the test responses.

3. The prediction arrived at as a result of Interaction testing was different from that resulting from "Testing alone."

4. Additional evidence from Interaction testing provided a broader basis for a prediction which, at least in this case, was born out by subsequent events.

In the case of Jim and Jessie Interaction testing turned the scales favorably but one can envisage innumerable situations where the opposite might happen. Interaction testing may have a valuable contribution to make wherever interpersonal relationships are at the center of attention.

REFERENCES

- Doppelt, J. E. Estimating the full scale score on the Wechsler Adult Intelligence Scale from scores on four subtests. *J. Consult. Psychol.*, 1956, 20, 63.
- Gladston, E. R. A Note on the Z-test Results

of 37 Schizophrenics. *The Rorschach Newsletter*, 1960, V, no. 2.

Gladston, E. R., & Hagenauer, G. The clinical use of the Z-test. *The Rorschach Newsletter*, 1960, V, no. 1.

Kaldegg, A. Three Drug Addicts. *Guy's Hospital Reports*, 1954, 103, no. 4, 348-359.

Krauser, E. L. The Couples Rorschach: An Approach to the Understanding of Marital Dynamics. *J. proj. Tech.*, 1964, 28, no. 1, 55-63.

Morali-Daninos, A. & Canivet, N. *Le Test "Z." Manuel d'Application*. Paris: Centre de Psychologie Appliquée, 1960.

Roman, M. & Bauman, G. Interaction Testing: A Technique for the Evaluation of small Groups. In *Creative Variations in the Projective Techniques*. By Harrower, M. et al. Springfield, Illinois: Charles C. Thomas, and Oxford: Blackwell Scientific Publications Ltd., 1960.

Salomon, F. *Ich-Diagnostik im Zulliger-Test*. Bern und Stuttgart: Hans Huber, 1962.

Semconoff, B. The Z-Test as a quick Substitute for Rorschach. *The Rorschach Newsletter*, 1963, VIII, no. 1.

Zulliger, H. *Der Z-Test*. (Three Plates). Bern: Hans Huber, 1951.

Zulliger, H. *Der Zulliger-Tafeln-Test*. 2nd Edition. Bern und Stuttgart: Hans Huber, 1962.

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Received November 23, 1964

Revision received June 22, 1965

On The Modification of Clinical Procedures

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Summary: All sciences depend for their progress on the modification of existing procedures and the clinical sciences are no exception. The question is raised whether the restriction of modifications of clinical procedures, even though legally defensible, is socially and scientifically helpful.

An event has occurred recently in the pages of this *Journal* which has such important implications for the development of clinical psychology that it must not pass without comment. No good purpose would be served by citing the papers in question and this comment is aimed, in any case, at the general problem rather than the specific instance. Briefly, a paper was published which employed a well known assessment technique but with such modifications as were deemed advisable. Full credit was given the originator of the assessment technique.

Subsequently the originator of the assessment technique replied in print stating the opinion that the modification employed in the earlier work would lessen the utility of his instrument for assessment. No evidence was presented to support this opinion. The particular modifications employed, the originator opined, were such as to lead to results different from those which he would normally expect. *Therefore*, he continued, any future modifications of the type employed would be regarded as copyright infringements. There are important implications.

Since this is a journal for psychologists, not attorneys, there will be no discussion of the legal issues. But consider the scientific and social issues. There is a clear implication that a technique may not be employed for any purpose other than one intended by the inventor or discoverer. Certainly all due credit, respect and in certain cases involving profit-making applications, even remuneration must

be given the originator of a technique. But beyond that what are the consequences of holding back the dawn of new applications of old techniques?

Suppose a pharmacologist develops a drug A to treat disease X. It is remarkably successful, say, reducing morbidity by 30%. Furthermore the development of drug A gives support to a particular theory held by the developer of drug A. Now suppose a second pharmacologist has reason to believe that with slight modification drug A will be even more effective. He tries it and finds drug A' reduces morbidity by 60%. Should the first pharmacologist be permitted to restrict the development of drug A' because its action is inconsistent with his theory? Or suppose the original drug A is employed to treat some different disease for which it is markedly effective. Should its use for this purpose be restricted because the original theory does not predict the drug's effectiveness against this second disease?

Scientific progress depends upon a communality of effort. It is the norm in the physical, biological, and behavioral sciences that investigators employ the procedures employed by others including such modifications as are felt to be useful. Consider, for example, how much less we would know about the stimulus properties of the Rorschach if investigators had been prevented from varying the color and shading of the blots.

Now obviously the original investigator's contribution must be recognized and if profits are involved (which in the actual case they are

not) he must be appropriately recompensed. However, the question is raised whether it is either humanitarian or consistent with the scientific attitude to attempt to hold back other workers, even if such action be

legal, from their honest pursuit of useful knowledge.

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BOOK REVIEWS

Angyal, Andras, *Neurosis and Treatment*. New York: Wiley, 1965, Pp. xxi, 328.

It was with keen surprise that the reviewer read *Neurosis and Treatment*. For two years I have been formulating an overlapping theory of neurosis, a theory revolving around the concept of the Core Dialogue, a dialogue which I have conceptualized as going on between the two organizations of personality: healthy and sick. I had no broad system with which to relate this one central hypothesis.

Andras Angyal has produced such a broad, intricate, interlocked far-reaching system. The core of Angyal's thesis is that the personality, with all of its functions — symbolization, feelings, conation, imagination, and defenses, is organized, governed and directed under two organizations — neurosis and health. They are not isolated parts but two whole systems in the holistic, gestalt sense. They have the properties of systems in that they seek to realize their system principles throughout; there is a search for closure (the filling in of un-occupied positions) and Praeganz (a rearrangement of parts that would move the outlying items into positions required by the system's principle).

What is the system principle of the healthy organization? Angyal sees the two main tasks to be fulfilled in life as covered by the concepts of autonomy and homonomy or, the tasks of mastery and participation.

The system principle of neurosis which, once dominant, seeks to impress itself on all psychological functions, comprises the following features: the self is felt to be weak and the world alien, overwhelming, unapproachable. The system principle of the sick system is summed up by fear and isolation.

The neurotic system becomes dominant by the generalization of trauma. Trauma means trauma to a specific human being in its development towards mastery and participation; trauma of such generality and overwhelmingness that there would be no way for that organism to find mastery and to relate confidently with his surroundings. Once trauma has generalized, the neurotic system is dominant and the healthy organization has not disappeared but is now alien and repressed.

The basic question, since these two selves or organizations of selves within are related

to each other is: how are they related? Angyal answered this with analogies as well as specifics. He cites the Gestalt perception demonstration of the ambiguous picture which may be seen as either a black face on a white background or two white faces in profile, turned toward each other. Angyal reminds us that the basis for both organizations is there, but only one of the two can be seen at a given instant. *The two systems of personality organization co-exist within each other*. Thus we are healthy throughout and neurotic throughout. The patient progressing in psychotherapy does not have to fear losing his basic personality traits, the parts take their position under a new dominant principle — that of health.

The discussion of therapy is the most exciting part of the book. Therapy is viewed in two aspects which are overlapping from the beginning: *demolition and reconstruction*. In the demolition part of the psychotherapy interpretations are from symptom to syndrome to still larger wholes until a decisive formulation of both the generality and the specifics of the patient's defenses, his neurotic attempts to solve life's problems are spelled out in all of their individuality. Interpretation must be holistic; to be effective it must go from part segment of the neurotic system to the whole. Resistance is to be expected. It is simply the attempt of the neurotic system to defend itself and to maintain its organization. Finally, a kind of despair coming out of an overwhelming sense of futility at further attempts to make the neurotic leitmotif work ensues.

What are the implications for psychotherapists? First of all, in severe neuroses, sudden alterations from improvement to regression, depressions very late in therapy, the over-all discontinuity of the patient's progress all become more and more understandable in the light of dualistic theory. If there are two systems, neurosis and health, competing very actively to organize the patient's personality, then it is not likely that the severely ill patient could ever get well in a straight line. Appropriate planning, confidence in what is transpiring in therapy, could result from adopting this view of the dynamics of therapy.

Secondly, the holistic personality theory points a powerful searchlight on the buried healthy potentials of the neurotic patient. It

is an exciting hypothesis to view the defenses working in the healthy as well as the neurotic systems. I have found this formulation fruitful in cases where patients are fleeing success, constantly hiding from solid evidence of their competence. Even more important, Angyal believes that in cases in which guilt is a heavy factor, exploration of the sick defenses (before the healthy organization has been uncovered) may be disastrous to the patient's self-esteem. This I have found of particular benefit with the compulsive-obsessive who reacts to all uncovering of the sick organization intropunitively.

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Holt, Arthur G., *Handwriting in Psychological Interpretations*, Springfield, Ill.: Charles C. Thomas Publisher, 1965, Pp. 262, \$10.50.

The title of this book, its format and the well-selected bibliography of European and American scientific authors convey the impression that we are about to receive a badly needed English introduction to the psychodiagnostic aspects of handwriting analysis, especially designed for psychologists and professionals in related fields who use projective techniques.

However, the flyleaf of the book sets the same tone found in most other American cliché graphology books typical for their superficial approach to the subject of handwriting analysis with the purpose of easy teachability and usefulness to the layman. This is illustrated by the following quotations: "...the book will enable the reader to judge both himself and others realistically ...", "...that it (the book) will lead to greater self-control, self-understanding and better management of life..." and the list of the readers for whom the book is intended is headed by "Housewives, Married Couples, etc." with "Doctors, Psychologists and Psychiatrists" in sixth place.

In opening the book, we find that the author devotes a separate chapter to each letter of the alphabet, describing various shapes of the letters with their possible minor modifications and omissions. In addition, he has a chapter on i-dots, one on initial and final strokes, another on punctuation marks, etc. After mentioning briefly such serious exponents of handwriting analysis as Ludwig Klages, Klara Roman and others, the author

expounds his own method in which he claims to use a unique invention, namely "analysis" and "synthesis." A naive symbolism and simple imagery are clearly discernible in interpretations by Dr. Holt's system. It seems to be unnecessary to quote even a few interpretations of the individual elements; most of them can be found in any graphological "how-to" book. Although the author claims that his approach is "new" and "scientific", Dr. Holt's method is a throwback to Abbe Michon's fixed sign graphology of a hundred years ago. The explanations supporting the system hardly hint at the dynamics of personality structure or, for that matter, the complex interplay of handwriting elements. It concentrates instead on pairing handwriting variables with dubious and ill-defined character traits presented in a handy "Index of Deviations from the Standard (established by Dr. Holt) and their Names: By Numbers and Letters."

It is amazing how authoritatively the author expounds his theories, completely oblivious of experimental and statistical validations. Also, how completely he ignores the basic teachings of the scientific graphological literature he includes in his bibliography. One could almost draw the conclusion that he has never read the books he cites. On page 7, we find the startling sentence which is not only in contradiction to any concept of handwriting analysis as an expressive movement, but also to any kind of modern psychological interpretation: "A single characteristic feature in a handwriting standing by itself can be taken as a basis of analysis and must *not* be regarded in conjunction with any other feature." To prove this, the final sample analysis in the book (p. 247) "was worked out from a specimen handwriting cut into words (and at random pasted on a piece of paper) to familiarize the student to ignore the content and concentrate wholly on the essential components" (as mentioned on page 244 and 245).

Klages' science of expression seems to be perfectly unknown to the author. Neither has he applied measurements to handwriting elements nor any rigorous standards of evaluation to movement characteristics, e.g. speed, regularity-irregularity, distribution, binding and releasing tendencies, form level etc. Most of all, he has disregarded the basic thesis of any dynamic handwriting interpretation, i.e. every graphic element receives its meaningful interpretation from the context in which it is found. We would not have expected to find in this book new results from painstaking factor analysis requiring complex and ex-

pensive computer work, but one has the right to expect a clear, factual presentation of modern scientific handwriting analysis, its techniques, research results, limitations and potentialities as these have been described in the books of the bibliography. In itself, the book is hardly worthy of review by a serious scientific journal. However, in view of the book's scientific claim as "Handwriting in Psychological Interpretations" and the quoted scientific literature in foreign languages (not easily accessible to all readers) which was not used at all, we considered it necessary to remove the impression that the contents of this book reflects the standards and methods of scientific handwriting analysis.

Dr. Holt's book could not possibly stand the test of scientific acceptance among serious-minded handwriting analysts and psychologists. This is the more regrettable as there is a definite need for a serious introductory book on the subject of handwriting analysis. In short, the book is a promise that is not kept.

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Kobler, Frank J., *Casebook in Psychopathology*, Staten Island, New York, Alba House, 1964, Pp. 379, \$9.75.

The author of a casebook has a difficult task facing him when he considers the preparation of his material. He hopes the book will engender sufficient interest to sell as a text or as a handy reference for busy clinicians. It must be so unique that it differs materially from other casebooks; so broad as to cover a wide range of diagnostic categories and yet not so wide that it covers every possible condition. The cases must be typical of those seen in general practice; the case studies must include background information, test findings, psychiatric evaluations, and summaries of the outcome of therapy. Yet, the question always must be "Is it complete enough?"

Kobler was aware of all these problems. He included case histories of twenty-five patients with a wide range of symptoms. These included latent homosexuality, juvenile delinquency, marital difficulties, severe emotional disturbances in children and adults, religious problems, phobias, and obsessive-compulsive features. The author stated that he was not

striving to teach methods of counseling nor was it his intention to train in diagnostic evaluating. In addition, he stated that only incidentally or secondarily was it important that the patients were either neurotic or psychotic. His major purpose was to show how the patients "reveal themselves through talking or discussion".

Some of the patients were seen in only a few therapeutic sessions, whereas other studies covered periods of one to two years. Tests were used quite extensively but Kobler's purpose was to integrate the results with the interviewing as well as to indicate the strengths and limitations of the tests.

Kobler had in mind the unique qualities necessary in a casebook when he stated that the book should have special appeal to those of the Catholic faith as almost all of the patients whose cases were reported were Catholic. He felt that their problems in therapy were different than those of other patients. Perhaps there may be a small element of truth to this but this reviewer believes that the difference is essentially small and need not create a special problem to experienced therapists whose caseload usually knows no religious differentiation. The problems reported are universal and the techniques are those used for all religious groups. Kobler believes that the value system in his cases are concerned with a conscience that "is particular to a Catholic". Here, again, one questions this statement for the conscience factor is more cultural, in the broad sense, than it is narrowly religious.

Kobler directed this book primarily to clergymen and physicians, feeling that these two groups refer two-thirds of all cases for treatment. This does not seem to be the major consideration in considering the book for adoption because the prime user of a casebook is rarely the clergyman or a physician. Rather, it is the clinician and the student who will find the greatest use. If Kobler were correct in his contention, there would be little need for the extensive reporting of test protocols and Rorschach summaries.

Perhaps the greatest value for this casebook lies in the use of typical cases that one finds in everyday office practice, especially those in outpatient clinics and family counseling settings, rather than those which many casebooks include, the typical chronic, long-term hospital patient. The author has a simple, direct manner of writing that makes his case studies interesting and easy to understand. He wished to show "how the person explains himself". In this he succeeded. One can recog-

nize the motivation for seeking therapy and how these patients see their past as well as their hopes for the future. The book should be a useful adjunct in courses devoted to clinical psychopathology as well as a handy

guide to the experienced clinician.

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 Larchmont, N.Y. 10538 F 1952

- BENE, Eva (Ph.D.)**
1 Upper Wimpole St.
London, W1, England F 1961
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1053 Redstone Pl.
Hayward, Calif. 94545 M 1962
- BERGSTROM-BORLAND, Mrs. Ingrid**
1025 Las Ovejas Ave.
San Rafael, Calif. 94903 M 1956
- BERLINER, Anna (Ph.D.)**
2206 B Street
Forest Grove, Ore. 97116 M 1954
- BERLINER, Mrs. Hildegard**
120 Commonwealth Ave.
San Francisco, Calif. 94118 M 1959
- BERMAN, Gershon (Ph.D.)**
Dept. of Psychology
Agnew State Hospital
San Jose, Calif. 95114 M 1962
- BERNSTEIN, Mrs. Hilde R.**
2220 S. Manning Ave.
Los Angeles, Calif. 90064 M 1953
- BERNSTEIN, Lewis (Ph.D.)**
921 E. Calumet Rd.
Milwaukee, Wis. 53217 F 1961
- BERNSTEIN, Louis (Ph.D.)**
218 Oak Hill Dr.
Hathoro, Pa. 19040 M 1957
- BERNSTEIN, Mildred R.**
498 Hempstead Ave. (Ph.D.)
Malverne, L.I., N.Y. 11565 M 1950
- BERRICK, Myron E. (Ph.D.)**
1086 Ocean Avenue
Brooklyn, N.Y. 11230 M 1955
- BIELIAUSKAS, Vytautas J.**
Xavier University (Ph.D.)
Dept. of Psychology
Cincinnati, Ohio 45207 F 1956
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Hospital
Nashville, Tenn. 37203 F 1950
- BILLINGS, Edward G. (M.D.)**
1820 High Street
Denver, Colo. 80218 F 1940
- BISSIRI, Gerald R.**
2135 Ridgmont Dr.
Los Angeles, Calif. 90046 M 1959
- BLASER, Andreas B.**
21 Kalcheggweg
Bern, Switzerland A 1965
- BLATT, Sidney J. (Ph.D.)**
333 Cedar St.
New Haven, Conn. 06510 F 1963
- BLAU, Theodore H. (Ph.D.)**
213 E. Davis Blvd.
Tampa, Fla. 33606 M 1955
F 1956
- BLESSING, Harold D. (Ph.D.)**
11842 Enid Dr.
Potomac, Md. 20854 M 1953
- BLUM, Gerald S. (Ph.D.)**
2641 Geddes Ave.
Ann Arbor, Mich. 48104 F 1961
- BLUMENTHAL, Seymour M.**
354 Plaza Bldg. (Ph.D.)
245 S.E. 1st St.
Miami, Fla. 33131 F 1962
- BLUMSTEIN, Mrs. Molly G.**
5219 Wayne Ave.
Philadelphia, Pa. 19144 M 1948
- BOLGAR, Hedda (Ph.D.)**
Psychiatric and Psychosomatic
Research Institute,
Mt. Sinai Hospital
8720 Beverly Blvd.
Los Angeles, Calif. 90048 F 1956
- BONDEL, Gertrude (Ph.D.)**
2049 McGraw Ave.
New York, N.Y. 10462 A 1953
M 1954
- BORTREE, David W.**
P.O. Box 871
Kansas City, Mo. 64141 M 1961
- BOSNER, Mrs. Jane Potter**
58 Ridge Road
Rumson, N.J. 07760 A 1957
- BOWDLEAR, Charles M.**
Psychology Services (Ph.D.)
VA Hospital
Sepulveda, Calif. 91324 M 1957
- BOWERS, Scott T. (Ed.D.)**
375 Talbott Tower
Dayton, Ohio 45402 M 1956
- BRAMWELL, Paul F.**
418 West 7th North
Provo, Utah 84601 M 1957
- BRANDT, Rudolph J. (Ph.D.)**
10921 Wilshire Blvd.
Los Angeles, Calif. 90024 M 1950
- BRASSARD, Elianora I. (Ph.D.)**
P.O. Box 486
Lincoln, Nebr. 68501 M 1962
- BRAUN, Mrs. Roslyn R.**
170-15 Highland Ave.
Jamaica Estates, N.Y. 11432 M 1949
- BRAWER, Mrs. Florence B.**
1749 Mandeville Canyon Lane
Los Angeles, Calif. 90049 A 1962
- BREWER, Paul W. (Ph.D.)**
209 W. La Mar Rd.
Phoenix, Ariz. 85013 M 1961
- BRICKLIN, Barry (Ph.D.)**
1 Forsythia Dr. North
Levittown, Pa. 19056 F 1962
- BRICKLIN, Dr. Patricia M.**
1 Forsythia Dr. North
Levittown, Pa. 19056 M 1958
- BRISKIN, Gerald J. (Ph.D.)**
2901 Devonshire Rd.
Ann Arbor, Mich. 48104 M 1961
- BRODERSEN, Lella**
Apt. A-5, Wood-Norton Apts.
6347 Wayne Ave.
Philadelphia, Pa. 19144 M 1963
- BRODIE, Mrs. Dorothy B.**
4833 Tenth Ave. N.
St. Petersburg, Fla. 33713 M 1943
F 1950
- BRODY, Abraham B. (Ph.D.)**
29 Heatherbloom Road
White Plains
N.Y. 10605 M 1952
- BRODY, Claire M. (Ph.D.)**
134 West 71st St.
New York, N.Y. 10023 M 1955
- BRODY, Gertrude G. (Ph.D.)**
29 Heatherbloom Road
White Plains
N.Y. 10605 M 1948
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8504 Rayburn Rd.
Bethesda, Md. 20804 M 1944
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Western Psychiatric Institute
3811 O'Hara Street
Pittsburgh, Pa. 15213 F 1940
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345 Claremont Ave.
Montclair, N.J. 07042 F 1953
- BROWER, Mrs. Judith F.**
300 N. Mountain Avenue
Upper Montclair,
N.J. 07043 M 1918
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Mt. Sinai Hospital
Fifth Ave. & 100th St.
New York, N.Y. 10029 F 1950
- BROWNELL, Rosa Parsons**
2725 Barnson Pl.
San Diego, Calif. 92103 M 1947
- BROWNFAIN, John J. (Ph.D.)**
21174 Greenview Ave.
Southfield, Mich. 48076 F 1963
- BROZOVICH, Stanley M.**
449 E. Pine
Altadena, Calif. 91001 M 1953
- BRUCE, Martin M. (Ph.D.)**
340 Oxford Rd.
New Rochelle,
N.Y. 10804 M 1952
- BRUNSCHWIG, Lily (Ph.D.)**
2697 Euclid Hgts. Blvd.
Cleveland, Ohio 44106 M 1953
- BRY, Mrs. Mae G.**
59 W. 12th Street
New York, N.Y. 10011 M 1953
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9710 Upton Rd.
Bloomington, Minn. 55431 M 1961
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999 N. Doheny Dr.
Los Angeles, Calif. 90069 M 1942
F 1951
- BURCHARD, Edward M. L.**
1230 Park Ave. (Ph.D.)
New York, N.Y. 10028 F 1940
LM 1965
- BURGEMEISTER, Bessie B.**
65 Smith St. (Ph.D.)
Lake Ronkonkoma
N.Y. 11779 M 1942
F 1947
- BURTON, Arthur (Ph.D.)**
Sacramento State College
6009 Jay Street
Sacramento, Calif. 95819 F 1965
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1927 Hampton Court
Ann Arbor, Mich. 48103 M 1962
- CALABRESI, Renata A. (Ph.D.)**
360 Central Park West M 1944
New York, N.Y. 10025 F 1950
- CALIGOR, Leopold (Ph.D.)**
175 Riverside Drive
New York, N.Y. 10024 M 1952
- CAMPOS, Leonard P. (Ph.D.)**
Dept. of Psych.
Univ. of the Pacific
Stockton, Calif. 95204 M 1964
- CANTER, Aaron H. (Ph.D.)**
4035 E. McDonald Dr. M 1949
Phoenix, Ariz. 85018 F 1952
- CAPALDI, Mrs. Betty F.**
86 Westview Rd., Apt. 5
Wilmington, Del. 19802 M 1959
- CAPELL, Martin D. (Ph.D.)**
18258 Fremont St.
Livonia, Mich. 48152 M 1958
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2014 Grove Avenue
Richmond, Va. 23220 M 1940
- CARP, Frances M. (Ph.D.)**
Trinity University
715 Stadium Dr.
San Antonio, Texas 78212 F 1963

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Psychiatric Institute
722 West 168th Street M 1953
New York, N.Y. 10032 F 1963
- *CARROLL, Clara
42-20 Kissena Blvd.
Flushing, L.I., F 1940
N.Y. 11355 LM 1963
- CARSON, Marjorie
Children's Aid Soc. of
Metropolitan Toronto
33 Charles Street East
Toronto 5, Ont., Can. M 1951
- CARRIER, Linda Louise
1115 Wertland St. M 1949
Charlottesville, Va. 22903
- CASSELL, Russell N. (Ed.D.)
U.S. AID
c/o American Embassy M 1954
Monrovia, Liberia F 1955
- CEASE, Eugene
Box 234
Warren State Hospital
Warren, Pa. 16865 M 1951
- CHAMBERLAIN, Allan B.
100 E. Way
Camillus, N.Y. 13031 M 1961
- CHAYKIN, Albert
Guidance Center
University of Miami
Coral Gables,
Fla. 33146 M 1956
- CHU, Thomas W.
770 West End Avenue
New York, N.Y. 10025 M 1955
- CICCARELLO, Dr. Jennie
1901 E. Noel A 1956
Tampa, Fla. 33610 M 1958
- CLAPPERTON, Gilbert Jr.
3216 Willowbrook Dr.
Waco, Texas 76711 A 1965
- CLARK, W. Donald
8 Rosalind Rd. A 1960
Trenton, N.J. 08638 M 1964
- CLARKE, Mary G. (Ph.D.)
Timberlake Estates
Route 1 F 1965
Chapel Hill, N.C. 27514
- CLAUSS, Helen O.
23 Glen Street M 1951
Chambersburg, Pa. 17201
- CLAYSON, M. David (Ph.D.)
434 E. 70th St., Apt. 1-D
New York, N.Y. 10021 M 1964
- CLERK, Mrs. Gabrielle Brunet
249 Lockhart
Town of Mt. Royal
Quebec, Can. M 1949
- CLIMO, Mrs. Esther
School Psychologist
25 Woodside Terrace A 1964
New Haven, Conn. 06515
- COHEN, David W.
509 W. 112th St.
New York, N.Y. 10025 A 1965
- COHEN, Mrs. Mathilde Weill
46 E. 91st Street
New York, N.Y. 10028 M 1942
- COHEN, Morris A.
514 Cedar St.
Uniondale, N.Y. 11553 A 1965
- COHEN, Morris L.
86 E. 96th St.
Brooklyn, N.Y. 11203 M 1962
- COHLER, Bertram J.
2001 West
900 Memorial Dr. A 1965
Cambridge, Mass. 02138
- COLE, Elizabeth Stirling
4801 Kenmore Ave. A 1960
Alexandria, Va. 22304 M 1963
- COLE, Joseph Carl (Ph.D.)
14034 S. Pioneer Blvd.
Norwalk, Calif. 90651 M 1949
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Director of Research
Child Welfare League of
America
44 E. 23rd St. M 1956
New York, N.Y. 10010 F 1963
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P.O. Box 24
Hyde Park, N.Y. 12538 M 1961
- CONDELL, James F. (Ed.D.)
Moorhead State College
Moorhead
Minn. 56560 M 1965
- COOK, Philip H. (Ph.D.)
Department of Labour and
National Service
129 Swanton Street
Melbourne, C.I. M 1941
Victoria, Australia F 1949
- COOPER, Miss Gertrude V.
3004 No. Stuart St.
Arlington, Va. 22207 M 1961
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5606 Wyndale Ave.
Philadelphia, Pa. 19131 M 1956
F 1965
- COUCH, Arthur S. (Ph.D.)
William James Hall
Harvard Univ. M 1964
Cambridge, Mass. 02138
- *COWIN, Marion
Bridgewater F 1940
Conn. 06752 LM 1965
- COX, Rachel Unaway (Ph.D.)
503 Walnut Lane M 1950
Swarthmore, Pa. 19081 F 1952
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Dept. of Psychiatry
Washington University
St. Louis, Mo. 63130 M 1960
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2086 Park Ave.
San Jose, Calif. 95126 M 1965
- CROVETTO, Lorraine
703 Carondelet St. M 1953
New Orleans, La. 70130
- CRUMPION, Evelyn (Ph.D.)
6945 Trolley Way
Playa del Rey, M 1955
Calif. 90291 F 1963
- CRYSN, Gerd M. (Ph.D.)
13300 S.W. 85 Ct.
Miami, Fla. 33156 M 1960
- CUMMINGS, C. Peter (Ph.D.)
555 Weadley Road
Wayne, Pa. 19087 M 1954
- CUNNINGHAM, Mrs. Cornelia
84 E. Moreland Ave. M 1950
Philadelphia, Pa. 19118
- DaCUNHA, Dr. M. C.
Opposite the Dargah
Cadell Road M 1961
Mahim, Bombay 16, India
- DANA, Richard H. (Ph.D.)
Psychology Dept. M 1956
Univ. of Wyoming F 1963
Laramie, Wyo. 82071
- DANESINO, Angelo (Ph.D.)
3172 Kennedy Blvd.
Jersey City, N.J. 07306 M 1964
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3065 Sedgwick Ave.
Bronx, N.Y. 10468 M 1955
- DASTON, Paul (Ph.D.)
Dept. of Psychology
Univ. of Maryland F 1964
College Park, Md. 20742
- DAVENPORT, Beverly (Ph.D.)
7701 Macaw Lane
San Diego, Calif. 92123 M 1949
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6001 Vine St., Suite 1003
Vancouver 13, B.C.,
Canada M 1959
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International Research Inst.
8555 Sixteenth St. M 1953
Silver Spring, F 1963
Md. 20910
- DAVIDS, Anthony (Ph.D.)
Dept. of Psychology
Brown University
Providence, R.I. 02912 F 1961
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7658 175th St.
Flushing, N.Y. 11366 M 1953
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90 La Salle St.
New York, N.Y. 10027 F 1940
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4355 Ardery Drive
Dayton, Ohio 45406 M 1955
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232 Warren Way
San Luis Obispo,
Calif. 93401 M 1952
F 1953
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108 Hampden Ave.
Narberth, Pa. 19072 M 1961
- de GERSDORFF, Anne F.
16 Atilda Ave. (Ph.D.)
Dobbs Ferry,
N.Y. 10522 M 1964
- DE MARTINO, Hugo A.
2823 Walker Drive M 1958
Yorktown Hgts., N.Y. 10598
- DERI, Mrs. Susan K.
225 W. 76th Street M 1948
New York, N.Y. 10025 F 1950
- DERNER, Gordon F. (Ph.D.)
Department of Psychology
Adephi University
Garden City, M 1949
N.Y. 11530 F 1951
- DE VAULT, Mrs. Barbara Allen
2026 A Parker St.
Berkeley, Calif. 94704 M 1953
- DE VAULT, Helen C.
2512 Via Finale
Palos Verdes Estates,
Calif. 90275 M 1950
- DE VAULT, Spencer H. (Ph.D.)
Emma Pendleton Bradley
Hospital
Riverside, R.I. 02915 M 1964
- DE WITT, Dr. Charles R.
Psychology Dept.
Univ. of Texas
Medical Branch M 1962
Galveston, Texas 77551
- DIAMOND, Mrs. Florence
135 Sierra View Road (Ph.D.)
Pasadena, M 1950
Calif. 91105 F 1963
- DIANA, Pearl Butler (Ph.D.)
3001 Coronado St. M 1949
Irving, Tex. 75060 F 1951
- DINGMAN, Paul R. (Ph.D.)
1206 Pleasant
Des Moines, M 1950
Iowa 50309 F 1963

- DOAK, Barbara Bowen**
High St.
Rockport, Me. 04856 M 1953
- DOMINGUEZ, Kathryn E.** (Ph.D.)
126 Tyson Road
Newtown Square
Pa. 19073 M 1943
- DONOGHUE, John R.** (Ph.D.)
Psychology Dept.
University of Portland A 1959
Portland, Ore. 97203 M 1962
- DÖRKEN, Herbert** (Ph.D.)
Chief of Psych. Services
Dept. of Mental Hygiene
1500 Fifth St.
Sacramento, M 1949
Calif. 95814 F 1951
- DOUGHERTY, Margaret Ruddy**
1804 Roselynn Avenue
Scranton, Pa. 18510 M 1944
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Box 31
Fly, Nevada 89301 M 1956
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Yerkes Regional Primate Res.
Centre of Emory Univ.
Atlanta, Ga. 30308 M 1964
- DRYSELUS, Harold**
423 Mountain Dr.
Santa Barbara, Calif. 93103 M 1950
- DUDEK, Stephanie Z.** (Ph.D.)
3476 Vendome Ave.
Montreal 28, Can. F 1961
- DUE, Floyd O.** (M.D.)
370 29th Street
Oa'land, Calif. 94609 F 1963
- DUNLAP, Dorothy** (Ph.D.)
18981 Raleigh Pl.
Saratoga, Calif. 95070 M 1954
- DYE, Curtis**
150 E. 9th Ave.
Escondido, Calif. 92025 A 1962
- EBER, Milton** (Ph.D.)
The Institute
Jackson Memorial Hospital
Miami, Fla. 33136 M 1961
- EGLASH, Mrs. Evelyn**
471 Henderson St.
San Luis Obispo, Calif. 93401 M 1953
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9760 W. Pico Blvd.
Los Angeles, M 1949
Calif. 90035 F 1963
- EINWOHNER, Joan** (Ph.D.)
320 W. 86th St.
New York, N.Y. 10024 A 1954
M 1960
- EISENSTADT, J. Marvin** (Ph.D.)
215 Floyd Ave., Apt. 11
Modesto, Calif. 95350 M 1965
- EISNER, Betty Grover** (Ph.D.)
1334 Westwood Blvd.
Los Angeles, A 1955
Calif. 90024 M 1961
- ELDRD, Donald M.**
Psychology Department
Vermont State Hospital
Waterbury, Vt. 05676 M 1948
- ELIZUR, Abraham** (Ph.D.)
6, Tel-Hai Street
Tel Aviv, Israel M 1950
- EPSTEIN, Hans L.** (Ph.D.)
722 W. 176th Street
New York, N.Y. 10033 M 1944
- ERICSON, Mrs. Helen**
11844 E. Deana Street
El Monte, Aff. 1954
Calif. 91732
- FRON, Leonard D.** (Ph.D.)
Dept. of Psychology
State Univ. of Iowa
Iowa City, Iowa 52240 F 1955
- EVANS, John T.** (Ph.D.)
85 Otis Street
Newtonville, M 1951
Mass. 02160 F 1957
- EVANS, Ray B.** (Ph.D.)
3507 Landa St.
Los Angeles, M 1954
Calif. 90039
- EVERETT, Evelyn G.** (Ph.D.)
Box 51
Imola, Calif. 94558 M 1953
- EXNER, John E. Jr.** (Ph.D.)
Dept. of Psychology
Bowling Green State Univ.
Bowling Green, M 1957
Ohio 43402 F 1961
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18 Chimney Ridge Ct.
Westwood, N.J. 07675 M 1959
F 1961
- FARBEROW, Norman L.** (Ph.D.)
1068 Casiano Rd.
Los Angeles, M 1949
Calif. 90049 F 1959
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Palmly Hearing Inst.
Loyola University
6525 N. Sheridan
Chicago, Ill. 60626 M 1960
- FATERSON, Hanna F.** (Ph.D.)
Dept. of Psychiatry Pav. 2
Downstate Medical Center
450 Clarkson Ave.
Brooklyn, N.Y. 11203 F 1946
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515 N. 10th St.
Richmond, Va. 23219 M 1964
- FEBLOWICZ, Ernst A.**
218 Tower Dr.
Beverly Hills, Calif. 90211 M 1963
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3232 S. Josephine St.
Denver, Colo. 80210 M 1951
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IVA Outpatient Clinic
1031 S. Broadway
Los Angeles, M 1943
Calif. 90015 F 1956
- FEIN, Leah Gold** (Ph.D.)
126 Kohary Dr.
New Haven, Conn. 06515 F 1961
- FEINBERG, Henry**
15886 La Salle
Detroit, Mich. 48238 M 1949
- FELDBERG, Theodore M.** (M.D.)
11 E. Chase Street
Baltimore, Md. 21202 M 1944
- FELDMAN, Dorothy A.** (Ph.D.)
Medical Arts Bldg.
Pittsburgh, Pa. 15213 M 1952
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502 Washington St.
Toms River, N.J. 08753 M 1953
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2424 Pennsylvania Ave.,
Apt. 714 A 1964
Washington, D.C. 20037
- FERRACUTI, Franco** (M.D.)
Via Ugo Balzani 57
Rome, Italy M 1954
- FEUERBURGH, Joseph** (Ph.D.)
15 Stuyvesant Oval
New York, N.Y. 10009 M 1957
- FICHMAN, Lionel L.** (Ph.D.)
1454 Comstock Ave.
Los Angeles, A 1954
Calif. 90024 M 1957
- FILMER BENNETT, Gordon** (Ph.D.)
Winnebago State Hosp. M 1954
Winnebago, Wis. 54985 F 1956
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225 W. 86th St.
New York, N.Y. 10024 M 1961
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225 W. 86th Street
New York, N.Y. 10024 F 1954
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Ruxton, Md. 21204 F 1958
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219 Bryant Street
Buffalo, N.Y. 14222 M 1949
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30 Fifth Ave.
New York, N.Y. 10011 M 1960
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22 Robinson St.
Cambridge, Mass. 02138 A 1965
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Educational Clinic
695 Park Ave.
New York, N.Y. 10021 M 1941
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917 Dante St.
New Orleans, M 1942
La. 70118 F 1947
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2170 Live Oak Dr., E.
M 1949
F 1951
- FORER, Lucille K.** (Ph.D.)
2170 Live Oak Dr., E.
Los Angeles, Cal. 90028 F 1963
- FORREST, Carol W.**
P.O. Box 293
Santa Paula, Calif. 93060 M 1951
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4350 Central
Indianapolis, Ind. 46205 M 1956
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350 Lowerline St.
New Orleans, M 1940
La. 70118 F 1949
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University, Ala. 35486 F 1964
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3437 Beaconsfield Ave. (Ph.D.)
Montreal
Prov. Que., Canada M 1954
- FRANK, George H.** (Ph.D.)
Dept. of Psychology
University of Miami F 1962
Coral Gables, Fla. 33146
- FRANK, Lawrence K.**
18 Goden St.
Belmont, Mass. 02178 H.M. 1954
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135 Laidley St.
San Francisco, Calif. 94131 M 1953
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Montrose, Pa. 18801 M 1950
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14 Penn Lane
West Chester, Pa. 19380 M 1960
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59 Francisco Ave.
West Caldwell, N.J. 07006 M 1953
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Connecticut Valley Hospital
Middletown, Conn. 06457 F 1964
- FRIEDMAN, Mrs. Gladys Miller**
29575 So. Woodland Blvd.
Pepper Pike, M 1949
Ohio 44124
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316 Southfield Drive
Fayetteville, N.Y. 13066 F 1963

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29575 S. Woodland Blvd.
Pepper Pike M 1954
Ohio 44124 F 1958
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1420 York Ave.
New York, N.Y. 10021 M 1964
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Dept. of Psych.
Univ. of Chicago M 1940
Chicago, Ill. 60637 F 1963
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7257 Melrose Ave.
Los Angeles M 1956
Calif. 90046 F 1963
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Residence 91 B
Governor Bacon Health Center
Delaware City, M 1952
Del. 19706
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Delaware City, M 1952
Del. 19706
- FUCHS, Arnold J. (Ph.D.)
Maine Medical Center
Mental Health Clinic
22 Bramhall St. A 1960
Portland, Me. 04102 M 1964
- FUCHSMAN, Seymour H.
140 E. 40th St.
New York, N.Y. 10016 M 1944
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Director of Research
Willmar State Hospital
Willmar, Minn. 56201 M 1961
- FURCHNER, Robert (Ph.D.)
10620 N.E. Wygant
Portland, Ore. 97220 M 1961
- GALLIANI, Cono
Psychology Division
Delaware State Hospital
New Castle, Del. 19720 M 1962
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281 Chatham Dr.
Kettering, Ohio 45429 M 1957
- GARFIELD, S. L. (Ph.D.)
Dept. of Psych.
Columbia Univ. Teachers Coll.
New York, N.Y. 10027 F 1959
- GASTON, Charles O. (Ph.D.)
Asst. Prof. Dept. of Neurology
and Psychiatry A 1955
University of Texas M 1957
Medical Branch F 1962
Galveston, Tex. 77525
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211 East 53rd St.
New York, N.Y. 10022 F 1940
- GAUDET, Frederick J. (Ph.D.)
Stevens Inst. of M 1949
Technology F 1958
Hoboken, N.J. 07030
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219 E. Seminole St. M 1943
Springfield, Ohio 65804
- GERDINE, Philip V., Jr. (Ph.D.)
18 Chestnut Pl. M 1949
Brookline, Mass. 02146 M 1964
- *GERING, Mrs. Evelyn E.
18100 Karen Drive M 1940
Tarzana, Calif. 91356
- GERSTEN, Rev. Charles (Ph.D.)
Via Coeli Monastery M 1949
Jemez Springs, N.M. 87025
- GESSNER, Alan (Ph.D.)
1623 Edgewood Dr. M 1961
Lakeland, Fla. 33803
- GIBSON, Robert L. (Ph.D.)
R.D. 5 M 1960
Norwich, Conn. 06360
- GILBERT, Jerrold I.
137 Circlewood
Tuscaloosa, Ala. 35404 A 1965
- GINANDES, Mrs. Janet
1150 Fifth Ave.
New York, N.Y. 10028 M 1957
- GLADFELTER, John (Ph.D.)
Dept. of Psychiatry
Southwestern Medical School
Dallas, Texas 75235 M 1958
- GLASS, Blanche (Ph.D.)
35 E. 85th St.
New York, N.Y. 10028 M 1955
- GOLDBERG, Philip A. (Ph.D.)
Connecticut College M 1965
New London, Conn. 06320
- GOLDBLOOM, Betty M. (Ph.D.)
3642 Darlington Rd.
Pittsburgh, Pa. 15217 M 1952
- GOLDEN, Doris Schulman
10 Downing Street (Ph.D.)
New York, N.Y. 10014 M 1948
- GOLDIARB, William (M.D.)
750 West End Ave. M 1941
New York, N.Y. 10031 F 1944
- GOLDFRIED, Marvin R. (Ph.D.)
Dept. of Psychology
State Univ. of N.Y. at M 1963
Stony Brook, L.I., N.Y. 11790
- GOLDMAN, Hannelore
812 W. 181 St.
New York N.Y. 10033 Aff 1964
- GOLDSTEIN, Fred J. (Ph.D.)
333 S. Maple Drive M 1956
Beverly Hills F 1963
Calif. 90212
- GONDOR, Mrs. Lily H
175 E. 74th St. M 1949
Apt. 18-B F 1952
New York, N.Y. 10021
- GOODMAN, Mrs. Beverly
145-50 Hoover Ave. M 1956
Jamaica, N.Y. 11435
- GOODMAN, Morris (Ph.D.)
2130 Millburn Ave.
Maplewood, N.J. 07040 M 1953
- GOODMAN, Mrs. Paya
165 E. 179th St. M 1961
Bronx, N.Y. 10453
- GOODNICK, Benjamin (Ph.D.)
Administration Building
Parkway and 21st M 1956
Philadelphia, Pa. 19103
- GOOLISHIAN, Harold A. (Ph.D.)
220 Tuna M 1952
Galveston, Tex. 77550 F 1957
- GORDON, Thelma
85 Chochley Gardens
Fortune Green Rd. M 1951
London NW 6, Eng.
- GOTTLIEB, Mrs. Sophie B. (Ed.D.)
225 W. 86th St. M 1943
New York, N.Y. 10024
- GRAHAM, Mrs. Sally
176-11 Henley Rd. M 1965
Jamaica Estates, N.Y. 11432
- GRAHAM, Virginia T. (Ph.D.)
2324 Park Ave. #11 M 1953
Cincinnati, Ohio 45206
- GRASSI, Joseph R.
1101 3rd St., S.W. Apt. 504
Washington, D.C. 20024 M 1942
- GRAVES, Winifred S. (Ph.D.)
4242 Cornelius Ave. M 1948
Indianapolis, Ind. 46208 F 1951
- GRAVITZ, Melvin A. (Ph.D.)
2025 Eye St., N.W. M 1956
Washington F 1961
D.C. 20006
- GRAYSON, Harry M. (Ph.D.)
403 S. Bundy Dr. M 1951
Los Angeles F 1963
Calif. 90049
- GREENBERG, Nathan (Ph.D.)
2820 Darlington Pl. Apt. 30
Montreal, Quebec A 1954
Canada M 1959
- GREENE, Janet S. (Ph.D.)
65 E. 76th Street
New York, N.Y. 10021 M 1953
- GREENSTADT, William M. (Ph.D.)
35 E. 30th St. A 1954
New York, N.Y. 10016 M 1955
- GRIFINER, David S. (Ph.D.)
10640 Santa Monica Blvd.
Los Angeles M 1965
Calif. 90025
- GRIER, Mary E. (Ph.D.)
2300 Overlook Rd.
Cleveland, Ohio 44106 M 1956
- GROSSMAN, Searles A. (Ph.D.)
4004 Coleridge Rd. M 1951
Wilmington, Del. 19802 F 1954
- GUNDLACH, Ralph (Ph.D.)
160 E. 84th St., Apt. 2K
New York, N.Y. 10028 M 1951
- GURVITZ, Milton S. (Ph.D.)
54 Gateway Dr. M 1948
Great Neck, N.Y. 11021 F 1951
- GUY, William
9905 Sutherland Rd. M 1953
Silver Spring, Md. 20901
- GUZE, Mrs. Vivian S.
66 Sunset Ave.
Montclair, N.J. 07042 M 1960
- HABER, Wm. B. (Ph.D.)
1020 Park Ave. No. 17-B
New York, N.Y. 10028 M 1953
- *HALLOW, William C. (Ph.D.)
Mercyville Hospital
1330 N. Lake St. M 1940
Aurora, Ill. 60506
- *HALLOWELL, A. Irving (Ph.D.)
University Museum
33rd and Spruce Sts. M 1940
Philadelphia, Pa. 19104 F 1944
- HALPERIN, Sidney L. (Ph.D.)
1710 Makiki St. M 1949
Honolulu, Hawaii 96822
- HALPERN, Esther (Ph.D.)
1400 Pine Ave. W. A 1954
Apt. 1403 M 1963
Montreal 25, Que., Can.
- HALPERN, Florence (Ph.D.)
245 E. 19th St.
New York, N.Y. 10003 F 1959
- HAMILTON, F. Sidney
Box 5214 NT Station
Denton, Texas 76203 M 1961
- HAMMER, Emanuel F. (Ph.D.)
685 West End Avenue A 1953
New York, N.Y. 10025 F 1959
- HAMMER, Max (Ph.D.)
Eastern Maine Guidance
Center
23 Ohio St. M 1964
Bangor, Me. 04401
- HAND, Mary Ella (Ph.D.)
2630 Scio Church Rd. M 1948
Ann Arbor, Mich. 48103
- HANDEL, Gerald
Social Research, Inc.
740 N. Rush St. M 1954
Chicago, Ill. 60611
- HANDLER, Leonard (Ph.D.)
Dept. of Psychology
Univ. of Tennessee M 1965
Knoxville, Tenn. 37916

- HANSEN, Irvin (Ph.D.)**
360 No. Bedford Dr. M 1960
Beverly Hills, Calif. 90210
- HARMES, John M.**
240 Smith Road
Manchester
N.H. 03104 M 1957
- HARRIS, Albert J. (Ph.D.)**
Div. of Teacher Education
535 E. 80th St.
New York, N.Y. 10021 M1951
- HARRIS, Robert A. (Ph.D.)**
Austen Riggs Center
Stockbridge M 1954
Mass. 01262 F 1963
- HARRIS, Robert E. (Ph.D.)**
The Langley Porter Clinic
University of California
Medical Center M 1948
San Francisco, Calif. 94122
- HARRIS, William W.**
717 Tuckahoe Rd.
Yonkers, N.Y. 10710 M 1949
- *HARROWER, Molly R. (Ph.D.)**
1040 Park Ave.
New York, N.Y. 10028 F 1940
- HAWORTH, Mary R. (Ph.D.)**
Nebraska Psychiatric Inst.
602 S. 44th Ave. M 1959
Omaha, Neb. 68105 F 1963
- HAYS, Mrs. Berta**
10239 Crenshaw Blvd., No. 2
Inglewood, Calif. 90303 M 1949
- HEATH, Douglas (Ph.D.)**
Haverford College
Haverford, Pa. 19041 M 1956
- HEBERT, Bernard**
3440 Northcliffe
Montreal 28, Can. M 1955
- HEINRICH, Max J.**
Box 488
Etna, N.Y. 13062 A 1963
- HEISLER, Verda (Ph.D.)**
3636 1st Ave. M 1951
San Diego, Calif. 92103
- HELLERSBERG, Elisabeth F.**
P.O. Box 104 (Ph.D.)
Harvard, Mass. 01451 M 1949
- HENRY, William E. (Ph.D.)**
5835 Kimbark Ave. M 1948
Chicago, Ill. 60637 F 1956
- HERMAN, Jack L. (Ph.D.)**
3106 Shore Rd.
Bellmore, L.I., M 1961
N.Y. 11710 F 1962
- HERRON, E. Wayne (Ph.D.)**
Dept. of Psychology
University of Wisconsin
Milwaukee, Wis. 53211 M 1965
- *HERTZ, Marguerite R. (Ph.D.)**
2835 Drummond Rd. F 1940
Shaker Heights, Ohio 44120
- *HERTZMAN, Max (Ph.D.)**
Dept. of Psychology
College of the
City of New York M 1940
140th and Convent Ave.
New York, N.Y. 10031 F 1946
- HIGGINSON, Gordon K. (Ph.D.)**
6040 N. Montana M 1954
Portland, Ore. 97217 F 1959
- *HILDEN, Arnold H. (Ph.D.)**
628 Clark Ave. M 1940
Webster Groves F 1943
Mo. 63119
- HILKEVITCH, Rhea R. (Ph.D.)**
Postgraduate Center for
Mental Health M 1954
124 E. 28th St. F 1963
New York, N.Y. 10016
- HILL, Larry K.**
3826 W. Jarvis
Skokie, Ill. 60076 M 1963
- HILL-GRANT, Carmen**
2420 Winthrop Rd.
Lincoln, Nebr. 68502 M 1963
- HILLSON, Joseph S. (Ph.D.)**
Norfolk State Hospital
Norfolk, Neb. 68701 M 1956
- HILTMANN, Hildegard (Ph.D.)**
Lehrstuhl für
Angewandte Psychologie
an der Universität
Freiburg im Breisgau
Peterhof, Peterstr. 1
Germany F 1957
- HIMELSTEIN, Philip (Ph.D.)**
Dept. of Psych.
Texas Western College M 1956
El Paso, Tex. 79999 F 1960
- HINDS, Edith A. (Ph.D.)**
1239 Lincoln Place
Brooklyn, N.Y. 11213 M 1960
- *HIRNING, L. C. (M.D.)**
R.F.D. No. 1, Box 180
Katonah, N.Y. 10536 F 1940
- HIRSCH, Mrs. Janet F.**
67-49-C 192nd St. M 1948
Fresh Meadows, N.Y. 11365
- HOCH, Erasmus L. (Ph.D.)**
1510 Northwood St.
Ann Arbor, Mich. 48103 M 1954
- HOLANCHOCK, Dr. Geo. M.**
Box D
Comstock, N.Y. 12821 M 1957
- HOLMES, Frances B. (Ph.D.)**
Whetstone Rd., R.D. 2
Harwinton, Conn. M 1950
- HOLODNAK, Helen Barbara**
31-38-36th St. M 1949
Astoria, L.I., N.Y. 11102
- HOLT, James M. (Ph.D.)**
5554 Littlebow Rd.
Palos Verdes Peninsula
Calif. 90275 M 1956
- HOLTZMAN, Wayne (Ph.D.)**
Hogg Foundation for
Mental Health
University of Texas
Austin, Texas 78712 F 1959
- HOLZBERG, Jules D. (Ph.D.)**
Box 351
Middletown M 1949
Conn. 06458 F 1954
- HOMER, Gordon**
247 Brookline St. M 1962
Cambridge, Mass. 02139
- HOOKE, James F.**
Dept. of Psychiatry
K.U. Medical Center
Kansas City
Kans. 66103 M 1963
- HOOKER, Mrs. Evelyn (Ph.D.)**
400 S. Saltair Ave. F 1958
Los Angeles, Calif. 90049
- HORLICK, Renben S. (Ph.D.)**
3004 N. Stuart St. M 1951
Arlington, Va. 22207 F 1961
- HORN, Daniel (Ph.D.)**
Cancer Cont. Prog.
Division of Chronic Diseases
P.H.S., HEW Bldg. F 1959
Washington, D.C. 20201
- HOSHINO, Akira**
Department of Psychology
International Christian Univ.
Mitaka Tokyo, Japan M 1959
- HOWARD, James W. (Ph.D.)**
Route 2
Rigaud, P.Q., Can. M 1954
- HOWARD, Stephen J. (Ph.D.)**
1850 Point View St.
Los Angeles A 1954
Calif. 90035 M 1958
- HOWLAND, Allan O.**
3521 Hamilton St.
Philadelphia, Pa. 19104 M 1951
- HUGHES, Robert M. (Ph.D.)**
Suite 101
849 Peachtree St., N.E. M 1944
Atlanta, Ga. 30308 F 1954
- HUTT, Max L. (Ph.D.)**
2114 Vinewood Blvd. M 1952
Ann Arbor, Mich. 48104 F 1955
- HYMAN, Sidney R. (Ph.D.)**
41 Bel-Air Dr.
Longmeadow
Mass. 01106 M 1962
- IMRE, Paul**
2111 Drummound Rd.
Catonsville, Md. 21228 M 1954
- INMAN, John M.**
160 Tamalpais Road
Berkeley, Calif. 94708 M 1945
- INNES-SMITH, Dr. James**
195 Laurier Ave., East
Ottawa 2, Ont., Can. M 1959
- ISAACS, Mark (Ph.D.)**
Chief Psych.
Spring Grove State Hosp.
Catonsville, Md. 21228 M 1959
- IVERSON, Norman E. (Ph.D.)**
161 Nob Hill Lane
Ventura, Calif. 93003 M 1956
- IVES, Margaret (Ph.D.)**
St. Elizabeths Hospital M 1953
Washington, D.C. 20032 F 1955
- JACKSON, C. Wesley Jr.**
School of Nursing
Western Reserve Univ.
Cleveland, Ohio 44106 M 1963
- JACOBS, Martin E. (Ph.D.)**
999 Central Ave. M 1955
Woodmere, L.I., N.Y. 11598
- JEFFRIES, Mrs. Helen**
14 East Sixth Street
Media, Pa. 19063 M 1956
- JOHNSON, Elizabeth Z. (Ed.D.)**
c/o Patton State Hospital
Drawer B
Patton, Calif. 92369 F 1956
- JOHNSON, Dr. Richard B.**
110 Waverly Place
New York, N.Y. 10011 M 1953
- JOHNSON, Theresa**
229 S. Maple Drive M 1949
Beverly Hills, Calif. 90212
- JONES, Marshall R. (Ph.D.)**
Dept. of Psychology
University of Miami
Coral Gables, Fla. 33146 F 1961
- JONES, Nelson F. (Ph.D.)**
Dept. of Psych.
Univ. of Arizona
Tucson, Ariz. 85721 M 1964
- JORTNER, Sidney (Ph.D.)**
450 E. 34th St.
Brooklyn, N.Y. 11203 M 1959
- JOSEPH, Alice (M.D.)**
12 E. 64th St.
New York, N.Y. 10021 M 1944
- *JUNKEN, Elizabeth M. (Ph.D.)**
408 Lydecker Street
Englewood M 1940
N.J. 07631 LM 1965
- KADINSKY, D.**
8 P. Smolenski Street
Tel Aviv, Israel M 1946

- KADIS, Mrs. Asva L.
1060 Park Avenue
New York, N.Y. 10028 M 1944
- KAHN, David F. (Ph.D.)
301 E. 69th St., Apt. 2F
New York, N.Y. 10021 M 1953
- KAHN, Marvin W. (Ph.D.)
Psych. Dept.
Ohio University
212 Porter Hall M 1956
Athena, Ohio 45701 F 1959
- KALINKOWITZ, Bernard N.
Graduate School of (Ph.D.)
Arts and Science
New York University
Washington Square M 1954
New York, N.Y. 10003 F 1959
- KAPLAN, Donald M. (Ph.D.)
41 Fifth Ave.
New York, N.Y. 10003 M 1961
- KAPLAN, Herbert
29 Patricia Avenue
Fishkill, N.Y. 12524 M 1949
- KAPLAN, Marvin L. (Ph.D.)
Dept. of Psychiatry
Univ. of Cincinnati Med. Sch.
Cincinnati General Hosp.
Cincinnati, Ohio 45229 F 1965
- KAPLAN, Norman (Ph.D.)
1½ East Gordon St.
Savannah, Ga. 31401 M 1949
- KAPLAN, Solomon D. (Ph.D.)
Lincoln State Hospital
Lincoln, Nebr. 68501 M 1965
- KARSON, Samuel (Ph.D.)
9927 Brixton Lane
Bethesda, Md. 20034 F 1957
- KASS, Walter (Ph.D.)
4 Farley Road
Scarsdale, N.Y. 10583 F 1955
- KATAGUCHI, Yasufumi
Natl. Inst. of Mental Health
Kohadai Ichikawa M 1958
Chiba, Japan F 1960
- KATES, Solis L. (Ph.D.)
University of Massachusetts
Amherst, M 1949
Mass. 01003 F 1963
- KATZ, Mrs. Florine
67 East 82nd Street
New York, N.Y. 10028 M 1953
- KATZ, Mrs. Harriet
516 East Maryland Avenue
Phoenix, Ariz. 85012 M 1950
- KAUFMANN, Elizabeth M.
414 W. 121st Street
New York, N.Y. 10027 M 1950
- KAY, F.W. Henry (Ph.D.)
416 Ocean Ave. M 1955
Brooklyn, N.Y. 11226 F 1963
- KAY, Mrs. Victor
1541 N. Edgemont St. M 1961
Los Angeles, Calif. 90027
- KELSEY, Howard Phelps
1252 Fourth Street
Sarasota, Fla. 33577 M 1944
- *KEMPLE, Camilla
20 W. 86th St. M 1940
New York, N.Y. 10024 F 1946
- KENDIG, Isabelle V. (Ph.D.)
Tucker Lane
Sandy Spring M 1944
Md. 20860 F 1946
- KESSEL, Paul
Park Towne Place North 1204
2200 Benjamin Franklin Pkwy.
Philadelphia, Pa. 19130 A 1963
- KEW, Clifton E.
333 E. 30th St.
New York, N.Y. 10016 M 1949
- KIDORF, Irwin W. (Ph.D.)
Chief Psych.
Cumberland Cty. Clinic
821 Church Street A 1955
Millville, N.J. 08332 M 1959
- KING, Francis W. (Ph.D.)
4 Kingsford Rd. M 1952
Hanover, N.H. 03755 F 1963
- KISSINGER, R. David
11 Davis St.
Binghamton A 1960
N.Y. 13905 M 1963
- KITAY, Philip M. (Ph.D.)
40-01 Little Neck Pkwy.
Little Neck, L.I., M 1955
N.Y. 11363 F 1963
- KLATSKIN, Ethelyn H. (Ph.D.)
Dept. of Pediatrics
3091 LMP
333 Cedar St.
New Haven M 1946
Conn. 06510 F 1955
- KLECKNER, James H.
70 Radnor Road A 1961
Great Neck, N.Y. 11023 M 1964
- KLEIN, Abraham (Ph. D.)
8 E. 10th St.
New York, N.Y. 10003 M 1955
- KLEIN, Mrs. Beatrice
20 Dunneman Ave.
Kingston, N.Y. 12401 M 1946
- KLEIN, Louis S.
28894 Morlock
Livonia, Mich. 48152 M 1959
- KLEIN, Milton I. (Ph.D.)
2980 Bedford Ave. A 1960
Brooklyn, N.Y. 11210 M 1963
- KLEINBERG, Mrs. Rosalyn K.
6606 N. 11th St.
Philadelphia, Pa. 19126 M 1950
- *KLOPPER, Bruno (Ph.D.)
Box 2971 F 1940
Carmel, Calif. 93921 LM 1965
- KLOPPER, Walter G. (Ph.D.)
7111 S.W. 55th M 1946
Portland, Ore. 97219 F 1951
- KLURFELD, Georges (M.D.)
Klosbachstrasse 125
Zurich 7/32,
Switzerland M 1961
- KNAPP, Pearl G. (Ph.D.)
Dept. of Psychiatry
Cedars of Lebanon Hosp.
4833 Fountain Ave. F 1956
Los Angeles, Calif. 90029
- KOHN, Miriam Asher
262 Willow St. M 1960
New Haven, Conn. 06511
- KOHS, Eldean V. (Ph.D.)
21 Ellsworth Ave.
Morristown, N.J. 07960 M 1964
- KOONS, Paul B. Jr. (Ph.D.)
6 LaMar Dr.
Athens, Ohio 45701 M 1961
- KORDA, Mrs. Geraldine J.
1030 Prospect Blvd.
Pasadena, Calif. 91103 M 1949
- KORNER, Anneliese F. (Ph.D.)
2299 Tasso St. M 1950
Palo Alto, Calif. 94301 F 1953
- KORNTRICH, Milton (Ph.D.)
50 S. Middle Neck Rd.
Great Neck, A 1958
N.Y. 11021 M 1960
F 1965
- KOROT, Leonard (Ph.D.)
8929 Wilshire Blvd.
Beverly Hills
Calif. 90211 M 1961
- KOTKOV, Benjamin (Ph.D.)
8 Orchard St. RD 2 M 1949
West Brattleboro, Vt. 05301
- KOVNAR, Murray (Ph. D.)
1603 Great Plains Bldg.
Lubbock, Texas 79401 M 1958
- *KRAFFT, Mrs. Margaret R.
27 West 96th Street, Apt. 4C
New York, N.Y. 10025 M 1940
- KRALL, Vita (Ph.D.)
Michael Reese Hospital &
Med. Cen., Dept. of Psych.
Inst. of Psychosomatic &
Psychiatric Research
29 St. and Ellis Ave.
Chicago, Ill. 60616 M 1961
- KRAMER, Ernest F. (Ph.D.)
Psych Department
McGill University M 1965
Montreal 2, Que., Canada
- KRAMER, George H. (Ph.D.)
302 Rossier
Corpus Christi
Texas 78411 M 1961
- KRAMISH, Arthur A. (Ph.D.)
USPHS, Mental Health
Services, Regional Office VI
560 Westport Rd. M 1957
Kansas City, Mo. 64111
- KRASNER, Leonard (Ph.D.)
Research Division
Educational Testing Service
Princeton, N.J. 08540 M 1952
- KRASS, Alvin
3822 River Rd. M 1961
Point Pleasant, N.J. 08743
- KRONENBERGER, Earl J.
Dept. of Psychology (Ph.D.)
Xavier University
Cincinnati, Ohio 45207 M 1964
- KRUGMAN, Dorothy C. (Ph.D.)
425 Riverside Drive
New York, N.Y. 10025 M 1944
- KRUGMAN, Herbert E. (Ph.D.)
425 Riverside Drive
New York, N.Y. 10025 M 1943
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P.O. Box 43
Tomkins Cove M 1941
N.Y. 10986
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P.O. Box 43
Tomkins Cove
N.Y. 10986 F 1940
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2130 Millburn Ave. M 1950
Maplewood, N.J. 07040 F 1951
- L'ABATE, Luciano (Ph.D.)
Georgia State College
Atlanta, Ga. 30303 M 1961
- LACHMANN, Frank M. (Ph.D.)
256 West 79th St.
New York, N.Y. 10024 M 1961
- LARIN, Harriet A.
4615 N. 22nd St., Apt. 105
Phoenix, Ariz. 85016 M 1950
- LAMPL, Henry M.
109 10 Queens Blvd. M 1953
Forest Hills, L.I., N.Y. 11375
- LANDIS, Bernard
276 Riverside Dr. A 1959
New York, N.Y. 10025 M 1962
- LANDISBERG, Selma
166 East 35th St.
New York, N.Y. 10016 M 1949
- LASKOWITZ, David (Ph.D.)
3856 Bronx Blvd.
Bronx, N.Y. 10467 M 1953

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450 N. Bedford Dr. M 1955
Beverly Hills, Calif. 90210
- LAWRENSEN, Thomas J.**
13-D Yale Street
Nutley, N. J. 07110 M 1955
- LAZOVIK, David A. (Ph.D.)**
University of Pittsburgh
Pittsburgh, Pa. 15213 F 1959
- LAZZARI, Renato (M.D.)**
Institute of Psychology
University of Roma
Roma, Italy M 1964
- LE BLAUX, Mrs. Thelma W.**
106 Newton Avenue N.
Worcester, Mass. 01609 M 1944
- LEBOWITZ, Anne (Ph.D.)**
12971 Galewood St. A 1956
Studio City, Calif. 91604 M 1961
- LEE, Dorothy B. (Ph.D.)**
33-33 82nd St. M 1950
Jackson Heights, N.Y. 11372
- LEHMANN, Heinz E. (M.D.)**
Verdun Protestant Hospital
Montreal, Que., M 1945
Can. F 1951
- LEIDEN, Irving (Ph.D.)**
750 Green Bay Rd.
Winnetka, Ill. 60093 M 1956
- LEONARD, A. T.**
435 Whitehall Rd.
No. Muskegon
Mich. 49445 M 1954
- LEOPOLD, Julius**
79 Hausch Blvd. A 1953
Roosevelt, L.I., N.Y. 11575
- LEPSON, David S. (Ph.D.)**
Dept. of Psychiatry
University of Pittsburgh
3811 O'Hara St.
Pittsburgh, Pa. 15213 M 1958
- LENER, Mrs. Edna A.**
445 East 84th St.
New York, N.Y. 10028 A 1965
- LESSER, Erwin (Ph.D.)**
9480 S.W. 54th St.
Miami, Fla. 33165 M 1958
- LEVENSTEIN, Mrs. Phyllis**
3268 Island Rd.
Wantagh, L.I., M 1948
N.Y. 11793
- LEVINE, Abraham (Ph.D.)**
970 Park Ave. M 1952
New York, N.Y. 10028 F 1961
- LEVINE, David (Ph.D.)**
Department of Psychology
University of Nebraska
Lincoln, Neb. 68508 F 1960
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42 Deepdale Parkway
Roslyn Heights, L.I.,
N.Y. 11577 F 1959
- LEVINE, Murray (Ph.D.)**
Psychoeducational Clinic
Yale University F 1963
New Haven, Conn. 06520
- LEVINGER, Leah**
2 Pierpont St., Apt. 7C
Brooklyn, N.Y. 11201 M 1952
- LEVINSON, Boris M. (Ph.D.)**
39-25-47th St. M 1952
L.I., N.Y. 11104 F 1956
- LEVINSON, Mrs. Toby**
152 Old Yonge St.
Willowdale 12,
Ont., Can. M 1960
- LEVIT, Herbert I. (Ph.D.)**
Dixmont State Hospital M 1954
Glenfield, Pa. 15115 F 1965
- LEVY, Henry L.**
1922 Rhodes St. M 1960
Hermosa Beach, Calif. 90254
- LEVY, Joshua (Ph.D.)**
Jewish General Hospital
Psych. Serv. 5 East
3755 Cote St. Catherine Rd.
Montreal 26,
Quebec, Can. M 1960
- LEVY, Ruth Jacobs (Ph.D.)**
14430 Union Ave. M 1948
San Jose, Calif. 95124 F 1951
- LEVY, Sidney J. (Ph.D.)**
945 Sheridan Rd.
Evanston, Ill. 60202 M 1956
- LEWINSON, Peter M. (Ph.D.)**
1994 Potter St.
Eugene, Ore. 97405 M 1958
- LEWIS, Robert T. (Ph.D.)**
2220 South Third Ave.
Arcadia, Calif. 91006 M 1955
- LIEBEN, Beatrice (Ph.D.)**
285 Fountain Road
Englewood, N.J. 07631 M 1952
- LIEBERMAN, Mrs. Janet Chase**
190 E. 72nd St.
New York, N.Y. 10021 M 1956
- LIPSHUTZ, Eva L. (M.D.)**
11848 Fifth Ave.
New York, N.Y. 10028 M 1940
- LIT, Jack (Ph.D.)**
1172 E. Slocom
Philadelphia, Pa. 19150 M 1956
- LITTLE, Kenneth B. (Ph.D.)**
Dept. of Psychology
Univ. of Denver
Denver, Colo. 80210 F 1959
- LIUTKUS, Stanley (Ph.D.)**
3 Bearfoot Terrace
Cupsaw Lake
Ringwood, N.J. 07456 M 1959
- LOCKWOOD, Wallace V. (Ph.D.)**
327 Laurel St.
San Diego, Calif. 92101 M 1949
- LOEHRKE, Leah M. (Ph.D.)**
17552 Daleview Dr.
Lakewood, Ohio 44107 M 1954
- LOISELLE, Robert H. (Ph.D.)**
Dept. of Psychology
Chatham College
Pittsburgh, Pa. 15232 M 1963
- LONGLEY, James L.**
Industrial Psychology Division
The Detroit Edison Company
2000 Second Avenue
Detroit, Mich. 48226 M 1953
- LONSTEIN, Murray (Ph.D.)**
Chief Psychologist VA Hosp.
Leech Farm Rd.
Pittsburgh, Pa. 15206 M 1953
- *LOPES, Jose Leme (M.D.)**
Rua Martins Ferreira 75 2C-02
Rio de Janeiro, Brazil F 1940
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1240 N. State St. M 1954
Chicago, Ill. 60610 F 1963
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Chief Psych. Service VA Hosp.
Canandaigua,
N.Y. 14424 F 1962
- LYON, LCDR W. B.**
Psychiatric Unit, MCRD
Parris Island, S.C. 29905 M 1960
- MABRY, Marie (Ph.D.)**
VA Hospital
150 S. Huntington Ave.
Boston, Mass. 02130 F 1964
- MacBRIDE, John L.**
690 E. Maple M 1955
Birmingham, Mich. 48011
- MacCASLAND, Barbara W.**
Marcy State Hospital (Ph.D.)
Marcy, N.Y. 13403 M 1957
- MAGNETTE, Jules (M.D.)**
Nevada State Hospital M 1956
Reno, Nev. 89505 F 1961
- MAKSIMCZYK, Walter (Ph.D.)**
Probation Dept. Psych. Clinic
1665 Eastlake Ave. M 1961
Los Angeles, Calif. 90033
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35 Church Hill M 1943
Westmount, Montreal 6, Can.
- MALM, Mrs. Mildred**
341 N. Myers St.
Burbank, Calif. 91506 M 1949
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215 W. 98th Street
New York, N.Y. 10025 F 1940
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6318 E. Lafayette Blvd.
Scottsdale, Ariz. 85251 M 1964
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55 Fern Drive
East Hills M 1949
Roslyn, L.I., N.Y. 11576
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Santa Fe, N.M. 87502 M 1958
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2131 Delancey Place
Philadelphia, Pa. 19105 M 1951
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116 E. 68th Street
New York, N.Y. 10021 M 1954
- MARKS, Phillip A. (Ph.D.)**
Kansas Univ. Med. School
Kansas City, Kan. 66103 M 1964
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326 N.E. 26th St. M 1961
Miami, Fla. 33160 F 1963
- MARSH, Donald D. (Ed.D.)**
595 E. Colorado Blvd.
Pasadena, Calif. 91101 M 1956
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270 Leggett Drive
Abilene, Tex. 79605 M 1957
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Univ. of Colorado Medical
Center
4200 E. 9th Ave.
Denver, Colo. 80220 M 1964
- MARK, Alfred (Ph.D.)**
Orthogenic School
Univ. of Chicago
1365 E. 60th St.
Chicago, Ill. 60637 M 1956
- MATHEWS, W. Mason (Ph.D.)**
Merrill-Palmer School
71 Ferry Ave., E. M 1949
Detroit, Mich. 48202 F 1955
- MATHIAS, Rudolf (Ph.D.)**
6306 Offshore Dr. M 1950
Madison, Wisc. 53705 F 1963
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553 E. 30th St.
New York, N.Y. 10016 M 1965
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Menninger Foundation
Topeka, Kan. 66601 F 1956
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Bryn Mawr College
Bryn Mawr, Pa. 19010 M 1940

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5101 Alameda at
Southmore M 1948
Houston, Texas 77004 F 1956
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Chief Clinical Psych.
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525 E. 68th St. M 1958
New York, N.Y. 10021 F 1962
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Phoenix, Ariz. 85018 M 1952
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700 N. Michigan Ave.
Chicago, Ill. 60611 F 1956
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601 Main St., Rm. 406
Vancouver
Wash. 98065 M 1960
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403 Bourn Ave.
Columbia, Mo. 65201 M 1963
- McKINLEY, Cameron K.
Psychology Dept.
Univ. of Texas Medical Branch
Galveston, Tex. 77550 A 1963
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Dept. of Health, Educ. and
Welfare
Region II
42 Broadway M 1950
New York, N.Y. 10004 F 1951
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2826 Shade Rd. (Ph.D.)
Akron, Ohio 44313 M 1953
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2264 Fairhill Lane M 1941
San Jose, Calif. 95125 F 1949
- MEIDINGER, Thomas A.
Office of Special School Serv.
4th and State
Quincy, Ill. 62301 M 1963
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239 Petrarca
Mexico 5, D.F. M 1961
- MENDENHALL, John H.
115 Spa Dr.
Annapolis, Md. 21403 M 1958
- MERCER, Margaret (Ph.D.)
St. Elizabeths Hospital M 1946
Washington, D.C. 20032 F 1950
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Mental Hygiene Clinic (Ph.D.)
VAH, Spokane
Wash. 99208 M 1961
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2479 16th Avenue M 1950
San Francisco, Calif. 94116
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Los Angeles, Calif. 90004 F 1949
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207 West 86th St.
New York, N.Y. 10024 F 1940
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Univ. of Penn.
Philadelphia Pa. 19104 A.F. 1960
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Chicago, Ill. 60612 M 1965
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Cincinnati Ohio 45206 M 1964
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Iowa State Univ.
Ames, Iowa 50010 M 1960
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1016 Richwood Ave.
Cincinnati Ohio 45226 M 1964
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17558 Prest
Detroit, Mich. 48235 M 1946
- MIMS, Mrs. Jean Giesey
19 Kern Ramble
Austin, Texas 78722 M 1943
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Dept. of Mental Health
1315 W. 10th St.
Indianapolis Ind. 46207 M 1964
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- MINDLIN, Dorothee F. (Ph.D.)
6408 Bannockburn Dr.
Bethesda, Md. 20034 M 1955
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School of Bus. Admin.
University of Oregon
Eugene, Ore. 97403 F 1965
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93 N. Edgemont Rd. M 1960
Huntington, W.Va. 25701
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Somerville, N.J. 08876 A 1964
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New London Conn. 06320 M 1950
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Iowa State Univ.
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Hartsdale, N.Y. 10530 M 1950
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20 Beatty Rd.
Media, Pa. 19063 M 1950
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206 Spring Garden St.
Faston, Pa. 18042 M 1956
- MORROW, J. Lloyd (M.D.)
197 Passaic Avenue
Passaic, N.J. 07055 M 1943
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3-10 Houchodori
Nakano-Ku-Tokyo Japan F 1961
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172 E. Crescent
Elmhurst, Ill. 60126 M 1954
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1220 Washington St. M 1943
Leavenworth, Kans. 66048
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Counseling Center
Michigan State Univ. A 1964
East Lansing, Mich. 48823
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New York, N.Y. 10014 M 1950
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Forest Hills L.I., N.Y. 11375 M 1955
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Menninger Foundation
Topeka, Kans. 66601 M 1941
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Fayetteville N.Y. 13066 M 1958
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Harvard Univ.
William James Hall
Cambridge Mass. 02138 M 1948
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New London Conn. 06320 M 1957
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307 Wayland Ave. M 1961
Providence, R.I. 02906
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155 W. 74th St.
New York, N.Y. 10023 M 1965
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VA Center
Martinsburg W. Va. 25401 M 1949
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Apt. T-10
New York, N.Y. 10012 M 1961
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2925 Arrowood Trail
Deerfield, Ill. 60015 M 1955
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920 Schenley Hall
Pittsburgh, Pa. 15213 M 1950
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100 Grace Ave.
Merrick, N.Y. 11566 A 1964
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30 Woodland Dr.
Fargo, N.D. 58100 M 1961
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1452 Willard St.
San Francisco Calif. 94117 M 1954
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John Carroll University
Cleveland, Ohio 44118 M 1954
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Dept. of Psychology
Univ. of Minnesota M 1954
Minneapolis, Minn. 55455 F 1958
- NUNOKAWA, Walter (Ph.D.)
1370 Knawood Dr. M 1965
Lake Oswego, Ore. 97034
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Flo, Ariz. 85231 M 1958
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51 E. 90th St.
New York, N.Y. 10028 M 1950
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404 Carondelet Bldg.
New Orleans La. 70130 M 1949
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249 Takatsu-shinden
Yachiyo-machi
Chiba-ken, Japan A 1964
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Psych. Service, VA Hosp.
East Orange N.J. 07019 M 1956

- OLINGER, Leonard Beunett
450 N. Bedford Dr. (Ph.D.)
Beverly Hills M 1954
Calif. 90210 F 1962
- O'REILLY, P. Oliver,
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Moose Jaw
Saskatchewan, Can. F 1957
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205 Crawford Ave. M 1952
Syracuse, N.Y. 13224 F 1963
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270 Riverside Dr.
New York, N.Y. 10025 A 1964
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Psychological Services
Allentown State Hospital
Allentown, Pa. 18103 F 1956
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Illinois Dept. of M.H.
160 N. LaSalle St. M 1951
Chicago, Ill. 60601 F 1963
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Community MH Facilities Br.
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Bethesda, Md. 20014 F 1960
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1356 Cardinal Ave. M 1960
West Chester, Pa. 19380
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263 West End Avenue Apt. 8A
New York, N.Y. 10025 F 1955
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Neuropsychiatric Institute
UCLA
Los Angeles
Calif. 90024 F 1964
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3154 Monticello Blvd. M 1958
Cleveland Hgts, Ohio 44118
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50 W. 96th St.
Brooklyn, N.Y. 10025 M 1957
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Box 20 M 1949
Bordentown, N.J. 08505 F 1963
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Tri-District Probation Dept.
Box 101
Denver, Colo. 80201 Aff. 1964
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Dept. of Psychology
Colorado State Univ. M 1963
Ft. Collins, Colo. 80521
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805 12th Ave. (Ph.D.)
Tuscaloosa
Ala. 35401 M 1964
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Chairman, Dept. of Psych.
Calif. College of Medicine
1721 Griffin Ave. M 1950
Los Angeles, Calif. 90031
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1694 D Street M 1949
San Bernardino, Calif. 92405
- PEARSE, Robert F. (Ph.D.)
Tiffany Road
Norwell, Mass. 02061 M 1961
- PECK, Michael
Suicide Prevention Center
2521 W. Pico M 1963
Los Angeles, Calif. 90006
- PECKARSKY, Adeline (Ph.D.)
67 Parker Ave. M 1958
Maplewood, N.J. 07040
- PEIXOTTO, Helen E. (Ph.D.)
Child Center
Catholic University of America
Washington
D.C. 20017 F 1955
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4850 W. Santa Barbara Blvd.
Apt. 4 M 1961
Los Angeles, Calif. 90016
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109 Maxwell Ave.
Geneva, N.Y. 14456 M 1951
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State Prison of So. Mich.
Psychiatric Clinic
4000 Cooper St. A 1957
Jackson, Mich. 49201 M 1961
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Psychology Department (Ph.D.)
Alabama State Hospital
Tuscaloosa, Ala. 35403 F 1956
- PHILLIPS, John C. (Ph.D.)
4 Andrews Road
Malvern, Pa. 19355 M 1958
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Worcester State Hospital
Worcester, Mass. 01604 F 1961
- PHILLIPS, Maurice
92 A Nassau St.
Princeton, N.J. 08540 M 1961
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Tavistock Clinic
2 Beaumont St.
London W 1, Eng. F 1961
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Jefferson Medical College
1025 Walnut St.
Philadelphia, Pa. 19107 F 1940
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The Devereux Foundation
Inst. for Res. and
Training M 1950
Devon, Pa. 19333 F 1961
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361 East Blvd. St. Joseph
Montreal 14,
Quebec, Canada M 1961
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2826 Shade Road
Akron, Ohio 44313 M 1958
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156 East 79th St.
New York, N.Y. 10021 A 1953
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McGill University
3684 McTavish St. M 1950
Montreal, P.Q., Canada F 1953
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16250 Ventura, Suite 430
Encino, Calif. 91316 F 1957
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82 W. 12th St.
New York, N.Y. 10011 M 1961
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Dept. of Psychology
Univ. of Texas M 1961
Austin, Texas 78712 F 1963
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44 West 10th St.
New York, N.Y. 10011 M 1951
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1545 Pine Valley Blvd. M 1964
Ann Arbor, Mich. 48104
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Dept. of Psychology
Michigan State Univ. F 1955
East Lansing, Mich. 48823
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Division of Clin. Psych.
Univ. of Colo. Med. Center
4200 E. 9th Ave.
Denver, Colo. 80220 M 1956
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3102 Woodhollow Dr. M 1956
Chevy Chase, Md. 20015
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Schwenksville M 1951
Pa. 19473 F 1956
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1423 Mellon Rd. M 1949
Wyncote, Pa. 19095 F 1955
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213 Midland Avenue
Wayne, Pa. 19087 M 1952
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Apt. C-11
Peekskill, N.Y. 10566 M 1964
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Dept. of Psychology
University of Windsor
Windsor, Ont., Can. M 1954
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Dept. of Psychology
Portland State College
724 SW Harrison
Portland, Ore. 97207 F 1961
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New York, N.Y. 10025 M 1959
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552 Neville
Pittsburgh, Pa. 15213 M 1943
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4937 Nagle Ave. M 1955
Sherman Oaks, Calif. 91403
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VA Center
Kecoughtan Station
Hampton, Va. 23367 M 1955
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23414 Clarendon M 1955
Woodland Hills, Calif. 91364
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Pasadena, Calif. 91105 M 1949
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Kennedy Child Study Center
1339 20th St.
Santa Monica M 1942
Calif. 90404 F 1954
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VA Center
Temple, Texas 76501 F 1963
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Univ. of Connecticut (Ph.D.)
Storrs, Conn. 06268 F 1940
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Rolling Hill
Schwenksville,
Pa. 19473 M 1958
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Los Angeles, Calif. 90064
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5856 Kantor St.
San Diego, Calif. 92122 M 1951

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New York, N.Y. 10025 M 1965
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Psychology Service
VA Hospital
Dallas, Tex. 75216 M 1957
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Children's Medical Center
Box 7572
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510 E. 85th Street
New York, N.Y. 10028 A 1954
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Harvard University
Larsen Hall F 1959
Cambridge, Mass. 02138
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1046 Madison St. M 1949
Denver, Colo. 80206 F 1954
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Fulton, Mo. 65251 M 1957
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Lake Forest, Ill. 60045
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Hirschgartenweg 22 H.M. 1954
Zurich 57, Switzerland
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Los Angeles, Calif. 90024
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1810 Rittenhouse Sq. M 1945
Philadelphia, Pa. 19103 F 1951
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1651 Sylvan Court M 1955
Elmont, N.Y. 11003 F 1964
- ROSENTHAL, Robert (Ph.D.)
Center for Res. in Personality
Harvard Univ. A 1955
Wm. James Hall M 1957
Cambridge, Mass. 02138 F 1959
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Ann Arbor, Mich. 48104 F 1964
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Bridgeport, Conn. 06605 F 1964
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Pittsburgh, Pa. 15213 F 1960
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B-910 Presidential Apts. M 1944
Philadelphia, Pa. 19131 F 1949
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Cincinnati, Ohio 45229 F 1940
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Worcester Guidance Center
275 Belmont St. F 1965
Worcester, Mass. 01604
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VA Hospital
Northampton M 1947
Mass. 01062 F 1965
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Kansas City
Kans. 66103 M 1961
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435 N. Roxbury Dr. M 1949
Beverly Hills, Calif. 90210
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Los Angeles, Calif. 90043
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St. Louis, Mo. 63103 F 1963
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12548 Everglade St. M 1953
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Miraflores, Lima, Peru M 1959
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New York, N.Y. 10032 M 1950
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4510 E. Vermont Ave. M 1961
Phoenix, Ariz. 85018 F 1963
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15959 E. Gale
La Puente, Calif. 91745 M 1964
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Scarsdale, N.Y. 10583 M 1950
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3106 Morrison
Tampa, Fla. 33609 M 1956
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Calif. 94122 M 1959
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Solis 155, VIII/A M 1940
Buenos Aires, Argentina
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Route 2 M 1956
Wabash, Ind. 46992
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6036 Upland Ter., S. M 1942
Seattle, Wash. 98118 F 1945
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107 1/2 N. 21st Ave. M 1963
Hattiesburg, Miss. 39401
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Vienna, Austria A 1959
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10 W. 86th St. M 1959
New York, N.Y. 10024 F 1961
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30 W. 60th St. M 1943
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- SCHWARTZ, Emanuel K. (Ph.D.)
12 E. 87th St. M 1949
New York, N.Y. 10028 F 1952
- SCHWARTZ, Lita Linzer (Ph.D.)
411 Lodges Lane
Elkins Park, Pa. 19117 A 1960
- SCHWERN, Mrs. Erna
250 E. 63rd St., Apt. 708
New York, N.Y. 10021 M 1950
- SCOTT, Edward M. (Ph.D.)
3632 N.E. Davis
Portland, Ore. 97232 M 1959
- SEILER, Mrs. Geraldine F.
1220 Oakland Dr.
Mount Dora, M 1946
Florida 32757 F 1950
- SEITZMAN, Daniel
160 Third Ave.
New York, N.Y. 10003 M 1949
- SELIG, Kalman (Ph.D.)
22 Ball Street
Irvington, N.J. 07111 M 1950
- SELTZER, Samuel M. (Ph.D.)
Box 65
Sonyea, N.Y. 14556 M 1954
- SHACKETTE, Mrs. Sarah Eyre
Route 2, Box 35
Espanola, N.M. 87532 M 1942
- SHAH, Saleem A. (Ph.D.)
103 Hillside Rd.
Catonsville, Md. 21228 M 1958
- SHALTEL, Dr. Jehudith
38, Metudeia Str.
Jerusalem, Israel M 1962
- SHARPE, Susie McMillan (Ph.D.)
46 W. 4th Street
Mt. Vernon, N.Y. 10550 M 1948
- SHFEHAN, Joseph (Ph.D.)
416-21 Place M 1952
Santa Monica, Calif. 90402

- SHFRR, Fannie
9 West 82nd St.
New York, N.Y. 10024 A 1965
- SHIPMAN, William G. (Ph.D.)
Michael Reese Hosp.
29th St. and Ellis Ave. M 1956
Chicago, Ill. 60616 F 1964
- SHNEIDMAN, Edwin S. (Ph.D.)
11431 Kingsland Ave.
Los Angeles, M 1949
Calif. 90066 F 1951
- SHULMAN, Harold S. (Ph.D.)
Mental Health Clinic
501 E. Springfield Ave.
Champaign, Ill. 61822 M 1957
- SIEGAL, Richard S. (Ph.D.)
Clinical Psychologist
Menninger Foundation
Topeka, Kans. 66601 F 1962
- SIEGEL, Burton (Ph.D.)
30 N. Michigan Ave.
Chicago, Ill. 60602 M 1962
- SIEGEL, Joseph H. (Ph.D.)
11350 Hillcrest Road
Dallas, Tex. 75230 M 1956
- SIEGEL, Max (Ph.D.)
50 Kenilworth Pl.
Brooklyn, N.Y. 11210 M 1949
F 1956
- SIEGEL, Miriam G. (Ph.D.)
57 E. 90th St.
New York, N.Y. 10028 F 1949
- SILVERSTEIN, Mrs. Sophie M.
2301 Kings Highway A
Brooklyn, N.Y. 11229 M 1964
- SIMKIN, James S. (Ph.D.)
435 No. Bedford Drive
Suite 216
Beverly Hills, Calif. 90210 M 1952
- SIMKINS, Lawrence (Ph.D.)
Dept. of Psych.
Univ. of Mo. at Kansas City
Kansas City A 1958
Missouri 64110 M 1963
- SIMON, Maria D. (Ph.D.)
Hartaekstrasse 44
Vienna 19, Austria M 1959
- SINGER, Erwin (Ph.D.)
33 Dunham Road
Hartsdale, N.Y. 10530 F 1959
- SINGER, Roland H. (Ph.D.)
7895 Mark Dr.
Verona, Pa. 15147 M 1953
- SISSON, Boyd D. (Ph.D.)
2237 Darlington Dr.
Forest Acres
Augusta, Ga. 30904 F 1957
- SKEELS, Dell (Ph.D.)
Humanistic-Social Department
University of Washington
Seattle, Wash. 98105 M 1954
- SLESS, Bernard
225 Upland Road
Merion Station, Pa. 19066 M 1952
- SMITH, Mrs. Margaret J.
1804 Drummond St.
Fau Claire, Wis. 54701 M 1950
- SMITH, Ross L.
Child Guidance Clinic
590 Newcastle St.
Perth, Western Australia M 1962
- SMOLINSKY, Harold J. (Ph.D.)
2311 Hampden Blvd. M 1952
Reading, Pa. 19604 F 1963
- SNOWDEN, Robert F. (Ph.D.)
2540 Huntington Dr. M 1953
San Marino, Calif. 91108 F 1959
- SOBOL, Albert L. (Ph.D.)
308 Betsy Brown Rd.
Port Chester, M 1949
N.Y. 10573 F 1954
- SOLL, Jerome (Ph.D.)
711 West End Ave. A 1961
New York, N.Y. 10025 M 1964
- SOMERVILLE, Addison W.
2415 D Street (Ph.D.)
Sacramento, M 1956
Calif. 95816
- SPENCER, Mrs. Betty L.
1912 18th Street M 1951
Huntington, W.Va. 25701
- SPIEGELMAN, J. Marvin (Ph.D.)
420 North Camden Drive
Beverly Hills M 1953
Calif. 90210
- SPIN, Mrs. Lillian
500 E. 56th Street
Brooklyn, N.Y. 11220 M 1950
- SPIRER, Jess (Ph.D.)
Box 8186
Univ. Guidance Center
Univ. of Miami F 1958
Coral Gables, Fla. 33124
- SPIRES, Alan M. (Ph.D.)
51 Maxwell Crescent
London, Ont., Can. M 1954
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2 West 87 St.
New York, N.Y. 10024 M 1958
- STANFORD, Dr. Margaret J.
Sonoma State Hospital
Eldridge, Calif. 95431 M 1950
- STANTON, Mrs. Harriet
15 Livermore Rd. M 1942
Wellesley Hills, Mass. 02181
- STAVRIANOS, Mrs. Bertha
823 Ingleside Place
Evanston, Ill. 60201 M 1943
- STFIN, Morris I. (Ph.D.)
21 Washington Pl.
New York, N.Y. 10003 F 1959
- STEINER, M. Elizabeth
220 Brookdale Ave. M 1943
Newark, N.J. 07106 F 1946
- STEINER, Meta (Ph.D.)
169-10 Highland Ave. M 1948
Jamaica, N.Y. 11432 F 1950
- STEINZOR, Bernard (Ph.D.)
365 West End Ave.
New York, N.Y. 10024 M 1943
- STENDEL, Mrs. Kathleen
Linde Medical Plaza (M.A.)
10921 Wilshire Blvd., Suite 701
Los Angeles M 1950
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- STERN, Mrs. Kathryn Werner
14-32 30th Dr. M 1952
Astoria, L.I., N.Y. 11102
- STERNBERG, David S. (Ph.D.)
192 Elm Dr. E. A 1955
Levittown, M 1961
L.I., N.Y. 11756
- STERNE, Spencer B.
2817 Land Park Dr. M 1953
Sacramento, Calif. 95818
- STEWART, Ralph H.
Psychiatric and Psychosomatic
Research Inst.
Mt. Sinai Hosp.
8720 Beverly Blvd.
Los Angeles
Calif. 90069 A 1964
- STOKER, David H.
Norristown State Hosp.
Psych. Dept.
Norristown, Pa. 19401 A 1963
- STONE, Irving R.
4015 State Bldg.
1350 Front St.
San Diego, Calif. 92101 M 1951
- *STONE L. Joseph (Ph.D.)
Vassar College
Poughkeepsie M 1940
N.Y. 12601 F 1951
- STONESIFER, Fred A. (Ph.D.)
509 Wyoming Ave. M 1951
Wilmington, Del. 19809
- STOOPS, Mrs. Wanda Rah
4256 Knollton Rd. M 1949
Indianapolis, Ind. 46208
- STOTZ, Marion
340 W. Enid Drive
Key Biscayne M 1953
Fla. 33149
- STRAIT, Bennett
Court House
Stroudsburg, Pa. 18360 M 1950
- STRAUSS, Mrs. Elsa L.
3819 Dakota Street
Cincinnati, Ohio 45229 M 1951
- STUNDEN, Alastair A. (Ph.D.)
Speech Clinic
Western Mich. Univ. A 1965
Kalamazoo, Mich. 49001
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Dept. of Special Education
6950 E. Prairie Rd.
Lincolnwood, Ill. 60645 M 1961
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Box 614, Radford College
Radford, Va. 24141 M 1961
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Dept. of Psychology
University of Oregon
Eugene, Ore. 97403 F 1961
- SWIFT, Joan Woodcock (Ph.D.)
5628 S. Blackstone Avenue
Chicago, Ill. 60637 M 1945
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162 Park Ave.
Glencoe, Ill. 60022 M 1952
- TALLENT, Norman (Ph.D.)
Psych. Service
VA Hospital
Northampton, M 1953
Mass. 01062 F 1963
- TANAKA, Mr. Fujio
3-7 Ishizakakakuba
Kanazawa, Shi
Ishikawa-ken, Japan M 1959
- TANIS, David C.
Psychology Service
Veterans Admin. Hosp.
Tuscaloosa, Ala. 35404 A 1965
- TAULBEE, Earl S. (Ph.D.)
Veterans Admin. Hospital M 1953
Tuscaloosa, Ala. 35401 F 1955
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7430 Tower St.
Falls Church M 1960
Va. 22046
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1307 Maple Ave.
Lancaster, Pa. 17603 M 1950
- *TICH, Mrs. Marianne
148-45 89th Ave. Apt. C4
Jamaica, N.Y. 11435 M 1940
- TEICHER, Arthur (Ph.D.)
215 West 88th St.
New York, N.Y. 10024 F 1958
- TEMERLIN, Maurice K. (Ph.D.)
University of Oklahoma
Dept. of Psychology
Norman, Okla. 73069 M 1956

- TENNEY, Edward V. (Ph.D.)
735 E. Holland Ave.
Fresno, Calif. 93704 M 1948
- TERCERO, Javier
Cerrada de Amores No. 22
Mexico 12, D.F. A 1962
- THEINER, Eric
6010 Schroeder Rd.
Houston, Tex. 77021 M 1963
- THETFORD, William N.
9 E. 78th St. (Ph.D.)
New York, N.Y. 10021 F 1957
- THORNTON, Thomas E.
7450 S.W. 140th Dr. (Ph.D.)
Miami, Fla. 33158 M 1959
- TOLOR, Alexander (Ph.D.)
Rt. 3 Saw Mill Ridge
Newtown, Conn. 06470 F 1963
- TOMBLEN, Donald (Ph.D.)
2 Fieldstone Dr.
Whippany, N.J. 07981 M 1956
- TOMKINS, Silvan S. (Ph.D.)
32 Clover Lane
Princeton, N.J. 08541 F 1959
- TOPPING, Marion Powers
(Mrs. Robert C.)
122 East 22nd Street
New York, N.Y. 10010 M 1948
- TOWNSEND, Mrs. Marjorie M.
Plainfield, Vt. 05667 M 1949
- TRACHTMAN, Gilbert M.
2941 Carlyle Rd. (Ph.D.)
Wantagh
L.I., N.Y. 11794 M 1954
- TREAT, Wolcott C. (Ph.D.)
San Diego State College M 1953
San Diego, Calif. 92115 F 1959
- TRENCH, Alma Nicholas
200 Retreat Ave.
Hartford, Conn. 06102 M 1954
- TRIPP, Clarence A. (Ph.D.)
55 Central Park West
New York, N.Y. 10023 M 1956
- TRITES, Ronald L.
Dept. of Psych.
St. Patrick's College
281 Echo Dr.
Ottawa, Ont., Can. A 1965
- TROLL, Enid Williams
2305 Andrews Ave.
Bronx, N.Y. 10468 A 1962
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10524 Wilshire Blvd.
Los Angeles M 1948
Calif. 90024 F 1949
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4615 Larchwood Avenue
Philadelphia, Pa. 19143 M 1940
- TYRREL, Mrs. Marcel J.
Franklin County Area Family
Counseling Service
17 Broadway
Farmington, Me. 04938 M 1960
- ULLMAN, Leonard P. (Ph.D.)
Dept. of Psychology
Univ. of Illinois
1005 W. Nevada
Urbana, Ill. 61801 M 1958
- UMPIERRE, Dr. Francisco Jose
Independencia 565
Baldric Hato Rey A 1956
Puerto Rico 00918 M 1957
- VACCARO, J. John (Ph.D.)
5 Dartmouth St.
Forest Hills, M 1951
N.Y. 11375 F 1955
- VAN DE CASTLE, Robert L.
Dept. of Psychiatry (Ph.D.)
N.C. Memorial Hosp.
Chapel Hill, N.C. 27515 F 1964
- VALERIUS, Elizabeth
285 Bleecker St., Apt. 3
New York, N.Y. 10014 A 1961
- VANDENBERG, Steven (Ph.D.)
Univ. of Louisville Twin
Study Child Devel. Unit
Medical Dental Research Bldg.
511 S. Floyd St.
Louisville, Ky. 40202 M 1951
- VASSILIOU, Vasso (Ph.D.)
8 Dem Soutsou St.
Athens (602), Greece M 1960
- VAYHINGER, John M. (Ph.D.)
Iliff Theological Seminary
2201 S. Univ. Blvd.
Denver, Colo. 80210 M 1952
- VOGL, Dr. Horst
Sigmund Freud Inst.
6 Frankfurt/M
Mylustr. 20
Germany M 1957
- VOIGT, Walter H.
Dept. of Psychology
Ohio University
Athens, Ohio 45701 A 1963
- VORHAUS, Pauline G. (Ed.D.)
27 W. 86th St. M 1941
New York, N.Y. 10024 F 1944
- WAGNER, Edwin (Ph.D.)
1568 W. Exchange
Akron, Ohio 44313 M 1961
- WAGNER, Mazie Earle (Ph.D.)
500 Klein Road
Buffalo, N.Y. 14221 M 1950
- WAGNER, Nathaniel N. (Ph.D.)
BB 839 Univ. Hospital
Seattle, Wash. 98105 M 1961
- WAITE, Richard R. (Ph.D.)
Univ. of Colorado School
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4200 E. 9th Ave.
Denver, Colo. 80220 M 1963
- WALD, Charles
21 Bond St.
Great Neck, N.Y. 11021 M 1961
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522 Hooper Lane
Chapel Hill, N.C. 27514 M 1961
- WALTON, Mrs. Norma R.
930 Dart Road, Rt. 5
Mason, Mich. 48854 M 1949
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39 Gramercy Park
New York, N.Y. 10010 M 1953
- WARREN, Lurene Z.
324 New St.
Spring City, Pa. 19475 M 1949
- WARSHAWSKY, Mrs. Florence
2889 Torrington Rd. M 1949
Shaker Heights, Ohio 44122
- WATERS, Thomas J. (Ph.D.)
P.O. Box 846 A 1955
Astoria, Ore. 97103 M 1961
- WATKINS, Roberta Frank
533 San Marino A 1955
San Marino, Calif. 91108
- WEDDIG, Thomas M.
2423 21st St.
Lubbock, Tex. 79411 A 1965
- WEINSTEIN, Marvin S. (Ph.D.)
405 Nova Albion Way
San Rafael, Calif. 94903 M 1958
- WEISS, Bertram A. (Ph.D.)
715 S. Parkway M 1956
Los Angeles, Calif. 90057
- WEISS, Emalyn R.
1020 Centre Ave.
Reading, Pa. 19601 M 1950
- WEISS, Herman R. (Ph.D.)
1277 E. 48th Street
Brooklyn, N.Y. 10034 M 1953
- WEISS, Sheldon W. (Ph.D.)
604 Clearview Ave.
Wycliffe M 1951
Wilmington, Del. 19809 F 1965
- WEISSKOPF-JOELSON, Edith
Dept. of Psychology (Ph.D.)
Purdue University M 1943
Lafayette, Ind. 47907 F 1951
- WELLS, Hal M.
955 Park Ave.
New York, N.Y. 10028 M 1960
- WENGATE, Pauline (Ph.D.)
2321 Crescent Avenue
Charlotte, N.C. 28207 M 1950
- WERNER, Henry Clay
204 Eighth Ave.
New York, N.Y. 10011 M 1958
- WERTHEIMER, Rita (Ph.D.)
5500 Fieldston Rd.
New York, N.Y. 10471 M 1955
- WETSEL, Mrs. Harriette H.
Summit City. Juv. Ct. Center
650 Dan St.
Akron, Ohio 44310 A 1964
- WHITE, Mrs. Helen Cecelia
215 S. Painter
Whittier, Calif. 90602 M 1950
- WHITMAN, Mrs. Dorothy
Route 1
Landrum, S.C. 29356 A 1956
- WHITMAN, Roy M. (M.D.)
Dept. of Psychiatry
Univ. of Cincinnati College of
Medicine
Cincinnati, Ohio 45229 M 1954
- WHITSELL, Leon J. (M.D.)
52 Shore View Ave. M 1942
San Francisco, Calif. 94121
- WICKERSHAM, Francis M.
U.S.P.H.S. Hosp. (Ph.D.)
Ft. Worth, Tex. 76119 M 1952
- WIGDOR, Blossom T. (Ph.D.)
503 Roslyn Ave.
Westmont 6
Quebec M 1949
Canada F 1956
- WILCOTT, Johanna Becker
3534 Edison Rd. (Ph.D.)
Cleveland, Ohio 44121 M 1957
- WILDE, Prof. Guido (Ph.D.)
Apartado Aereo 11228
Bogota DE 2
Colombia, S.A. M 1955
- WILENSKY, Harold (Ph.D.)
18 Essex Pl. M 1960
Hartsdale, N.Y. 10530 F 1960
- WILKINS, Mrs. Verna M.
Mother Goose Nursery School
9500 Warren Street M 1950
Silver Spring, Md. 20910
- WILLIAMS, Gertha (Ph.D.)
440 Townsend
Birmingham, M 1944
Mich. 48009 F 1949
- WILLIAMS, Helen E. (Ed.D.)
253 West 72nd St., Apt. 1808
New York, N.Y. 10023 M 1950
- WILLIAMSON, Miss Margaret O.
350 Richmond Terrace
Staten Island
N.Y. 10301 M 1945
- WILSON, Bradford J.
147 E. 50th St.
New York, N.Y. 10022 A 1964
- WILSON, Helen Elizabeth
Eastern Montana (Ph.D.)
College of Education
1500 N. 30th St. A 1958
Billings, Mont. 59101 M 1960

- WILSON, Mary T. (Ph.D.)
R.D. 1, Box 57 M 1944
South Salem, N.Y. 10590
- WINER, Harold R. (Ph.D.)
8215 Westchester Drive
Dallas, Tex. 75225 M 1956
- WISEMAN, Richard J. (Ph.D.)
Dept. of Psychology
Connecticut Valley Hospital
Middletown
Conn. 06457 M 1964
- WOLF, Clifton W.
1601 DeCharles
Tyler, Tex. 75706 M 1963
- WOLF, S. Jean (Ph.D.)
220 Fifth Avenue
New York, N.Y. 10001 M 1944
- *WOLFSON, Mrs. Ruth
124 W. 79th Street
New York, N.Y. 10024 F 1940
- WOLPE, Zelda S. (Ph.D.)
1155 N. LaCienega, Apt. 502
Los Angeles
Calif. 90069 M 1950
- WOLTMANN, Adolf G.
1364 Lexington Ave.
New York, N.Y. 10028 M 1949
- WOOLF, Henrietta K.
3345 Dent Place, N.W.
Washington
D.C. 20007 M 1950
- WRIGHT, M. Erik (M.D.)
Director, Clin. Psych. Program
Depts. of Psychol. & Psychiatry
Univ. of Kansas M 1943
Lawrence, Kans. 66045 F 1963
- WRIGHT, Morgan
Winnipeg Gen. Hosp. M 1955
Winnipeg, Manitoba, Can.
- WRIGHT, Rogers H. (Ph.D.)
420 E. Carson St. M 1961
Long Beach, Calif. 90807
- WUNDERLIN, Robert J.
Psychology Dept.
Old Dominion College A 1961
Norfolk, Va. 23508 M 1963
- WYATT, Frederick (Ph.D.)
Univ. of Michigan
Psychological Clinic
1027 E. Huron St. M 1948
Ann Arbor, Mich. 48104 F 1949
- YADOFF, Bernard (Ph.D.)
Chief Psychologist
Children's Hosp. of Pittsburgh
Pittsburgh, Pa. 15213 M 1958
F 1965
- YANG, Andrew T. (Ph.D.)
100 Devon
Bloomfield Hills M 1957
Mich. 48013 F 1963
- YEAGER, Marian B. (Ph.D.)
Medical Towers, Suite 1801
Houston, Texas 77025 M 1966
- YUFIT, Robert I. (Ph.D.)
1458 East Park Pl.
Chicago, Ill. 60637 M 1962
- ZAMORSKI, Emil J.
2744 Lanergan Dr.
Troy, Mich. 48064 A 1961
- ZEEV, Bracha
Oranim
P.O.B., Kiryat-Tivon A 1957
Israel M 1959
- ZEICHNER, Abraham M. (Ph.D.)
25 Crestview Dr. F 1955
North Haven, Conn. 06473
- ZIMET, Carl N. (Ph.D.)
School of Medicine
4200 E. 9th M 1959
Denver, Colo. 80220 F 1963
- ZIMMERER, Ann M. (Ph.D.)
2208 Fenwood Dr.
Pasadena, Texas 77502 M 1965
- ZIMMERMAN, Irla Lee (Ph.D.)
607 Bank of America Bldg.
Whittier M 1949
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- ZUCKER, Luise J. (Ph.D.)
275 Central Park West M 1945
New York, N.Y. 10024 F 1950

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Journal of Projective Techniques & Personality Assessment

Vol. 30

April, 1966

No. 2

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EDITORIAL

I would like to take this opportunity to thank those of our readers who have been kind enough to review books for our Book Review section. This is always an arduous task and one which is rather thankless. If the review is too favorable there is danger that the reviewer might be considered shallow and insufficiently critical. If the review is somewhat negative the author is likely to take umbrage and feel that his work or his integrity has been impugned.

Writing a good book review is a very demanding task and requires not only a thorough and critical reading

of the volume in question, but also a good deal of tact and diplomacy in getting across the points in generally palatable form. We have been fortunate in getting many outstanding reviews completed and I am very grateful to those who are willing to serve their fellow psychologists in this manner. Many important decisions about the use of books are based upon the tenor of reviews, and they play an important part in determining the progress of the science and profession of psychology.

WALTER G. KLOPPER

A Survey of Rorschach Teaching in the University¹

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and

JULIAN WOHL

University of Toledo

Summary: This paper reports on an extensive 81 item, nine page questionnaire on practices and attitudes toward the Rorschach, held by university faculty members who teach it. The questionnaire was sent to departments of psychology of which there was reason to believe basic clinical instruction in the Rorschach existed. Respondents were to be those people actually engaged in the teaching. The detailed questionnaire covered such areas as structure and coverage of the course, purposes for teaching Rorschach, technique of administration and interpretation, its uses, characteristics of instructors, and research.

Seventy-five per cent of the questionnaires were returned. The paper summarizes and considers implications of this information.

INTRODUCTION

Background

This study developed from the authors' observations of graduate students and professional colleagues in the clinical use of the Rorschach technique. It was our impression that students and professional practitioners alike employed a wide variety of approaches to the Rorschach. We observed many differences in methods of introducing the situation to the examinee, procedures of administration and scoring, systems of interpretation, and the reporting of results.

Some of this variability, of course, also is apparent in comparing well known texts (Beck, 1944; Klopfer, et al, 1954; Piotrowski, 1957; Rapaport, et al, 1945). Differences in scoring systems have been particularly highlighted by Toomey and Ovsiankina (1960).

In a review of the Rorschach, Beck

¹ During the initial phase of this study both the investigators were employed at the Veterans Administration Hospital, Dearborn, Michigan. During the latter part of this study, Dr. Jackson was supported by USPHS Grant #N1-00068. The authors wish to express their appreciation to Mrs. Barbara Sanders and Mrs. Jean Forbes for performing the tedious work of recording and tabulating the raw data, and to Dr. William Gumenik, University of Toledo, for his aid with the statistical analysis.

(1959) thoroughly dissociated his use of this test from that of Klopfer. Beck identified himself with Rorschach's original method and criticized Klopfer's approach as phenomenalist, non-statistical and departing from behavioral-empirical approaches. He concluded:

"Except for the use of Rorschach's ink-blot figures and some of his letter symbols, the technique has now so little in common with Rorschach's test, either in method or in some important basic pre-suppositions that it represents a quite different approach. Critics of the test, however, make no distinction in their sharp sometimes phobic reactions to anything with the name 'Rorschach' in its title. It would go far in clearing up the present state of confusion if Klopfer and his associates ceased to identify their method by the term 'Rorschach'." (1959, pp. 275-274)

Students often appear to reflect derogatory attitudes toward testing which stem from their university instruction. Often what is most apparent is an antagonism toward clinical work in general. More specifically, testing and particularly using the Rorschach are severely criticized for lacking research substantiation. Students frequently feel as if they are being asked to engage in an activity formally approved by the university but discredited by it, delegated by the clinical

agency but obviously out of step with the practices and values of the professional roles to which they aspire.

The attitudes summarized above are well known and of obvious concern to the profession. They are part of the broader problem of training which has prompted several professional conferences. Training to use the Rorschach is one element in the over-all situation and is the subject of this study. University instructors who teach the first or basic Rorschach course are key figures in the training process. They provide an early significant learning experience for most clinical graduate students, and they can provide information about the techniques they use and the attitudes they hold, both of which are conveyed to students.

Focus of the Present Study

Since the publication of Rorschach's book, *Psychodiagnostik* in 1921, a few surveys have appeared on training in his method. The history of Rorschach instruction may be traced in the following: Kelly (1940, 1941, & 1942), Klopfer (1943), Faterston and Klopfer (1945), Monroe (1945), Committee on Training (1959) and Lesser (1961).

Two questions stand out from this history. What are the attitudes of students, practitioners, and academicians toward the teaching and the use of the Rorschach? What are the techniques and approaches to the Rorschach which are being taught and used? As previously indicated, it was decided that an excellent source of answers was the instructors who teach graduate courses in the Rorschach.² With respect to the first question we inquired about the place of the course in the overall context of the department and the values and attitudes of the Rorschach instructors themselves. To answer the second question items

were included about: the instructors' choices of personality theories and Rorschach systems, the textbooks used, procedures of administration, methods of scoring and interpretation, and the use of test data in report writing.

METHODS AND PROCEDURES

The questionnaire contained 81 items and covered nine, single spaced, legal sized pages. Most of the space was taken up with the wording of the questions which were phrased as much as possible in a way that permitted an answer of a word or two, or merely a check mark. The questionnaire was divided into eight sections covering: history and context of the course in the department; course coverage; purposes in teaching the test; administration; scoring and interpretation; uses of the Rorschach; biographical characteristics of instructors; research.

The questionnaire and a letter were sent to chairmen of selected psychology departments throughout the United States and Canada on March 19, 1963.³ The letter requested that the questionnaire be given to an appropriate department member — the person teaching a basic course in Rorschach — to be filled out and returned in an enclosed, addressed, postage guaranteed envelope. The selection of departments was based upon department offerings as described in the *American Psychologist* for December, 1962 (909-922). Those departments which it seemed reasonable to suppose might have the required kinds of Rorschach instruction were selected. Five categories were used: (1) Ph.D. in Clinical Psychology — APA approved; (2) Ph.D. in Clinical Psychology; (3) Master's in Clinical Psychology; (4) Doctorate in Counseling; (5) Ph.D. in Personality.

At the beginning of May, by which

²Robert McCully has recently surveyed directors of A.P.A. approved internship centers regarding attitudes toward Rorschach instruction. His results complement these. (McCully, 1965).

³We are grateful to the University of Toledo for providing these services and for providing Dr. Wohl with released time from teaching duties to work on the analysis of the data, thus additionally subsidizing this study.

TABLE I—Distribution and Return of Questionnaire

| Category of Institution | Total sent out | | Returned | | Non-usable Returns | | Reasons given for returning blank questionnaires |
|------------------------------|----------------|------------|----------|-----|--------------------|----|--|
| | N | % of total | N | % | N | % | |
| 1. Ph.D. — clinical approved | 60 | 48 | 45 | 75 | 3 | | no relevant course |
| 2. Ph.D. — clinical | 25 | 20 | 19 | 76 | 1 | | |
| 3. Master — clinical | 31 | 25 | 24 | 77 | 3 | | |
| 4. Ph.D. — counseling | 5 | 4 | 5 | 100 | 0 | | |
| 5. Ph.D. — personality | 4 | 3 | 3 | 75 | 2 | | |
| Totals | 125 | 100% | 96 | 77% | 9 | 7% | |

time a 50 per cent return had already come in, a second letter was sent out with another copy of the questionnaire to the remaining 50 per cent. The additional return resulting from this was augmented by two or three that came from personal letters or conversations with representatives of some of the larger departments of psychology in the nation. We were concerned not to imbalance our survey by losing some of the universities that are training a large proportion of graduate students.

Table I presents the basic data on the sample. In all three categories which contain the bulk of the institutions to which questionnaires were sent, the per cent of those returning the questionnaire is essentially the same.

RESULTS

The presentation of this material is made in three broad categories: First is the context or general situation of Rorschach teaching. Here we consider the department program as ground to the Rorschach's position as figure. Second, we consider what might be called the values of the Rorschach as perceived by the people who teach it. After presenting first this contextual information we move to the data bearing on the actual practices of these teachers of the Rorschach method. Third then, comes content, or what the teachers say they do and teach.

I. Context: Situational and background issues

A. The course itself.

It might be helpful first to recall that the questionnaire was aimed at a

course which was devoted wholly or primarily to basic technical instruction. That this does not cover the variety of circumstances in which this teaching goes on, and that respondents interpreted the matter broadly, are evident from the range of responses to a question which asked for information as to whether the basic Rorschach course, was an 'introductory testing course', 'a general projectives course', a 'course primarily on Rorschach', or 'other'.⁴ More than half of the 87 respondents to this question used more than one category, some of them using three or even all four possibilities.⁵

TABLE II—Frequency in Different Categories of Courses in Which Rorschach Instruction is Given

| Category | Frequency |
|--|-----------|
| Introductory Testing | 24 |
| General Projectives | 44 |
| Specifically Rorschach | 58 |
| Other: "Personality assessment" and diagnostic testing | 10 |
| "Advanced projectives" | 6 |
| "Other projectives" | 1 |
| "Special clinical tests" | 6 |
| "Case formulation" | 1 |
| "Introduction to clinical" | 1 |
| "Workshop" | 2 |
| | 154 |

One must conclude that Rorschach instruction occurs in a wide variety of courses.

⁴Throughout the paper single quotation marks around a word or phrase indicate that the words thus enclosed are taken from the questions as they appeared on the questionnaire.

⁵The total number of respondents changes from question to question because all respondents did not answer all questions.

TABLE III—Frequency of Number of Courses Offered

| School Offering: | | | | |
|------------------|-------------|---------------|--------------|-------|
| One course | Two courses | Three courses | Four courses | Total |
| 42 | 27 | 15 | 5 | 87 |

In the 42 schools offering one course, 18 of these courses are devoted 'primarily' to Rorschach, and another 18 to 'general projectives'. There are 58 courses specifically on Rorschach; in several cases two of these are in one institution. Forty-four of the courses in which Rorschach instruction is given we must assume include instruction in other projective techniques as well ('General projectives'); and in 24 courses the instruction would seem more diluted, occurring in the context of an 'Introductory Testing' course. About 20 per cent of the respondent universities offer three or four courses which include Rorschach instruction. Inspection of these revealed no patterns or consistencies.

The median number of years such a course '(or a similar one)' has been taught is 9.2 (mean of 9.1). The range of this distribution is from one to 20 with the exception of one school, which took advantage of the above parenthetical phrase to indicate 75 years.

The responses to the question on prerequisites were neither surprising nor heterogeneous. Two general concepts, graduate standing and specific course listings cover all of the responses. The first was sometimes only implied, sometimes modified by "advanced" or "in clinical or counselling programs", or "permission of chairman". Specific courses listed include undergraduate and graduate courses typically considered as pertinent for clinical psychology; individual intelligence testing; tests and measures; personality assessment; abnormal; introductions to clinical, to appraisal, to testing.

The data suggest that there are a limited number of generally agreed

upon prerequisites demanded by practically all schools.

Half of the relevant courses are given to between 8 and 16 students ($Q_1=8.3$; $Q_3=15.5$; median=10.5). The range extends from as many as 45 to as few as one. If one considers eight students as a reasonable maximum (and many would consider this too high a figure), then not more than 25 per cent of the instructors would be able to devote much time to the individual instruction and supervision of students which has traditionally been considered a vital part of instruction in clinical methods. We thought it possible that those courses which have a large number of students might use assistants to improve the teacher-student ratio. The data show that half of the courses have no assistants, that 37 per cent have one, and that the remainder (11 courses) have two or more. If those classes that have a larger number of students also have a larger number of assistants, it would suggest that more individual attention is actually available to students than is indicated by the data on class size alone. A comparison of the 25 cases of classes having more than 15 students with the 11 cases of two or more assistants indicated an overlap of only three. The instructors who have the largest classes are not the same, with three exceptions, as those who have most assistants. A further comparison was made between those classes in which there were no assistants, and those in which there was one or more. The average number of students in a class for each group was the same.

TABLE IV—Range and Median Number of Rorschachs Required

| Category: | Range | Median |
|---|-------|--------|
| Administration | 0-25 | 6.5 |
| Score | 0-30 | 9.5 |
| Interpret | 0-35 | 5.8 |
| Group supervision (class discussion, etc.) | 0-25 | 4.8 |
| Write report | 0-25 | 4.5 |
| Individual supervision | 0-20 | 2.8 |
| Observation during administration | 0-12 | 1.8 |

Table IV presents figures on what the course requires (and provides) by way of minimum performance. The ranges are great and the median figures are relatively low.

One of the most completely unanimous answers in this data is to the question on the source of the decision about which system or approach to the Rorschach is to be used in a particular institution. Ninety-one per cent of the respondents report that the instructor decides this matter. Two per cent say that the department decides and seven indicate 'both equally'.

At this point we shall present data which show the "popularity" of the Rorschach compared with some of the other most commonly used clinical techniques. Table V presents the results of an item which requested the respondents to: 'please rank the following clinical diagnostic techniques according to how much emphasis they receive in your department's graduate psychology program'. These results are presented by medians of the rankings, and by first choices. It is clear that the

TABLE V—"Popularity" of Clinical Diagnostic Techniques

| Test | Median ranking | Frequency of first choice |
|----------------|----------------|---------------------------|
| Rorschach | 2.0 | 43 |
| WAIS | 2.6 | 24 |
| Interview | 3.8 | 16 |
| Stanford-Binet | 4.0 | 12 |
| TAT | 4.1 | 4 |
| MMPI | 5.8 | 6 |
| Draw-A-Person | 7.1 | 0 |
| Bender-Gestalt | 7.3 | 0 |

Note:—The category "other", although available, was used by only two respondents. This array seems not to have left out any commonly taught techniques.

Rorschach is the most emphasized clinical technique.

Some general information about course coverage was obtained by a series of questions about the topics covered in the course, including aspects of the Rorschach itself, as well as age and diagnostic categories considered. Table VI shows topics that

might be dealt with in the course in relation to the emphases given them. Here, and in Tables VII and IX, two measures, median of ranking and number of first choices are given.

TABLE VI—Emphases Given to Various Topics

| Topic | Median of rankings | Frequency of first choices |
|--------------------|--------------------|----------------------------|
| Interpretation | 2.9 | 27 |
| Scoring | 3.6 | 16 |
| Administration | 4.5 | 6 |
| Rorschach Theory | 4.5 | 11 |
| Report writing | 5.2 | 1 |
| Personality theory | 5.2 | 13 |
| Psychopathology | 6.3 | 7 |
| Others* | 2.7 | 10 |

*Only 30 per cent of the respondents used the category, "others".

Interpretation receives the most attention followed by scoring. The lowest of the medians is psychopathology. The content of "others" is heavily suffused with a variety of references to "research". Another category in this table which draws attention because of its neglect is report writing.

In response to the question as to whether these topics are brought up 'spontaneously', 'formally', or 'both', 63 per cent of the respondents report they follow a systematic procedure, 15 per cent take things as they come, and the rest combine these approaches.

Tables VII and IX show the emphasis respectively upon age and diagnostic categories as these are treated in the courses. It seems clear from Table

TABLE VII—Emphases Given to Various Age Groups

| Topic | Median of rankings | Frequency of first choice |
|------------|--------------------|---------------------------|
| Adult | 1.6 | 71 |
| Adolescent | 2.7 | 9 |
| Child | 3.2 | 7 |
| Old age | 4.4 | 1 |

TABLE VIII—Age and Systematization of Coverage

| Method of Coverage | Percentage of respondents |
|--------------------|---------------------------|
| Spontaneously | 60 |
| Formally | 34 |
| Both | 6 |

TABLE IX—Emphases Given to Various Diagnostic Groups

| Category | Median of rankings | Frequency of first choice |
|-------------------------|--------------------|---------------------------|
| Normal | 1.9 | 45 |
| Neurotic | 2.3 | 26 |
| Psychotic | 3.0 | 11 |
| Character disorder | 4.5 | 3 |
| Organic (CNS pathology) | 4.8 | 1 |
| Mental deficiency | 6.2 | 1 |
| Others* | | 0 |

*"Others" was used by 7 people, of whom 5 specified "transient personality disorders".

TABLE X—Diagnosis and Systematization of Coverage

| Method of coverage | Percentage of respondents |
|---------------------|---------------------------|
| Spontaneously | 51 |
| Formally | 36 |
| Both (or uncertain) | 13 |

IX that the courses are not oriented around psychopathology, if it is fair to construe the avoidance of diagnostic categories as reflecting an absence of such an orientation. The results with respect to age (Table VII) reflect the emphasis on adults and the relative neglect, commonly found in clinical programs, of other age levels.

Tables VIII and X indicate the degree to which these various topics are dealt with 'spontaneously' or 'formally'. In both instances the tendency is to deal with the material on a "spontaneous" basis rather than a 'formal' one, although a large minority does follow a systematic sequence. This indicates that the coverage given to diagnostic and age categories probably varies considerably from course to course.

B. The teachers

In undertaking this research we felt that it would be helpful to request some biographical information about the people who teach the course on Rorschach. It is possible for example, that the status of clinical teaching in the department might be suggested by the faculty rank accorded those who

teach clinical courses; or perhaps some tentative conclusions might be drawn by noting how much clinical experience and advanced training our subjects have had. It was because of such considerations that a number of questions of a biographical nature were included.

The median age of our respondents is 39; the range is 25 - 69. Eighty-nine per cent are male and 11 per cent are female. The breakdown of academic rank is as follows: Professor—33 per cent; associate professor—25 per cent; assistant professor—30 per cent; lecturer—7 per cent, with the remaining five per cent in the "other" category.

A series of questions was designed to inform us about the professional qualifications and experience of those teaching these courses. Answers to these questions appear in the following text and tables. The Ph.D. degree is held by 98 per cent of the respondents, with the remainder holding the master's degree. Table XI shows that by far, most of our sample are of the post war era.

TABLE XI—Year in Which Degree was Obtained

| Year | Frequency |
|---------|-----------|
| 1930-34 | 3 |
| 1935-39 | 3 |
| 1940-44 | 3 |
| 1945-49 | 9 |
| 1950-54 | 28 |
| 1955-59 | 25 |
| 1960-63 | 12 |
| Total | 83 |

Eighty per cent of our sample had no 'formal course work on Rorschach' after the highest degree was obtained, with 20 per cent having such work.

The remarkable congruity shown in Table XII between clinical experience and teaching experience probably means that most instructors engage in clinical activity along with their teaching. In both cases the ranges are great, but about 35 per cent fall into a category of four years or less of either teaching or clinical ex-

TABLE XII—Frequency of Years of Experience: Full Time Clinical; College Teaching

| Years | Clinical | Experience teaching |
|--------|----------|---------------------|
| 0-4 | 34 | 30 |
| 5-9 | 26 | 26 |
| 10-14 | 15 | 18 |
| 15-19 | 6 | 5 |
| 20-24 | 1 | 2 |
| 25-29 | 1 | 2 |
| 30-35 | 1 | 1 |
| Totals | 84 | 84 |

TABLE XIII—Years of Supervision as a Staff Member

| Years | Frequency |
|-------|-----------|
| 0 | 30 |
| 1/2 | 3 |
| 1 | 16 |
| 1 1/2 | 2 |
| 2 | 13 |
| 2 1/2 | 2 |
| 3 | 7 |
| 5 | 2 |
| Total | 75 |

TABLE XIV—Number of Times Taught a Rorschach Course

| Number | Frequency |
|--------|-----------|
| 0-4 | 39 |
| 5-9 | 22 |
| 10-14 | 6 |
| 15-19 | 9 |
| 20-24 | 2 |
| 25-29 | 2 |
| 35 | 1 |
| | 81 |

perience, and about 75 per cent have less than 10 years' experience.

Forty per cent of those teaching the course have had no supervision beyond graduate school, and another 20 per cent have had a year or less (Table XIII). Seventy-five per cent have taught the course nine times or less, and about 50 per cent have done so four times or less (Table XIV). Again here the range is great, but particularly in the latter case, because of the presence in our sample of some very senior clinicians.

The response to the request to 'list professional organizations of which you are a member' reveals that psy-

chologists in this sample are members of a great variety of professional groups. They include international, national, regional, state, and city organizations of psychologists, psychoanalysts, clinical psychologists, and other specialists. A mere 14 of our respondents list themselves as members of the Society for Projective Techniques.

As another approach to professional status, a question about certification and licensing was included. The return on this shows that two-thirds of the respondents to this item are certified by some state and one-fifth are licensed by a state. (Five of these people are both certified and licensed). In contrast to the number of people under the nominal control of the government, only one-third of our sample is certified by ABEPP. This may be because a large number of our respondents lack sufficient or appropriate clinical experience to qualify for this certificate. (See Table XII which indicates that 40 per cent are immediately eliminated as having less than five years clinical experience). Twenty people or a little over a third were certified under "grandfather" provisions, one was licensed in this way, and four were made diplomates without taking formal examination.

Knowledge of the literature of any field might be considered one index of adequacy to teach a course in that field. On two scales of five categories each, our sample responds as shown in Table XV. In general the categories 'moderately well' and 'quite well' subsume most of the people on both questions.

TABLE XV—Knowledge of Rorschach Literature

| | 'How well do you know Rorschach literature?' | 'How well do you keep up with new Rorschach literature?' |
|-----------------|--|--|
| Hardly at all | 0% | 3% |
| Slightly | 2% | 11% |
| Moderately well | 37% | 45% |
| Quite well | 48% | 31% |
| Extremely well | 12% | 10% |

Using the same categories, we asked, 'how well acquainted are you with approaches to the Rorschach other than the one you use', and learned that 23 per cent have a 'slight' or less acquaintanceship. Most people then have a considerable knowledge of alternative approaches, and to demonstrate the low level of dogmatism in our sample it can be reported that 70 per cent feel other approaches are 'about as good as mine', and only 21 per cent believe that others are 'probably inferior to mine'. On the other hand no one indicated that other approaches were superior to his.

II. Context: Attitudes and opinions of instructors

In this section we are turning to the second broad area of coverage, still background, but of great importance in any overall evaluation of the status of the Rorschach within the contemporary university training program. Here the focus is upon the attitudes, perceptions, opinions and judgments about the Rorschach held by those teaching it.

A. Values.

This category encompasses three questions aimed at discovering if our respondents feel it is worthwhile to teach Rorschach in graduate schools, purposes for teaching it, and the confidence they place in it for various uses. In response to the question, 'Do you believe that graduate schools should continue to provide instruction in the Rorschach test?', 94 per cent gave an affirmative answer and six per cent were negative. It appears then that regardless of the many complaints that one reads and hears about Rorschach, those who teach the technique are not ready to abandon it. The explanations given by those who said "No", and the qualifications of the few who said, "Yes, but . . .", either emphasize the issue of validity, or question the value of devoting a great deal of academic time to this one technique.

Following this item was one which

listed 10 'purposes for teaching the Rorschach' and asked that respondents 'check those five items which you believe to be the most important purposes.' Items for this question were chosen in order to provide dimensions on which people could be differentiated. One of these was a traditional — non-traditional usage dimension, and the other was a closely corresponding one of whether one liked or disliked the Rorschach. In Table XVI is shown the frequency with which each item was checked. (The items are arranged in the table in rank order; the letters to the left of each item indicate their original position as presented on the questionnaire.)

TABLE XVI—Frequencies of Checks on 'Purposes for Teaching Rorschach'

| Item | Frequency |
|--|-----------|
| A. It is a very widely used test and clinicians are expected to know it. | 69 |
| B. It is a valuable instrument in clinical diagnosis and personality description. | |
| G. It is valuable as a technique in teaching personality dynamics. | 69 |
| C. It is valuable in making a plan of assistance for clients and patients. | 57 |
| J. It is valuable as a research tool. | 44 |
| F. It is valuable in predicting behavior in counseling and psychotherapy. | 39 |
| E. It is not particularly valid but there is nothing comparable in the field that is better. | 31 |
| D. It has historical interest. | 29 |
| I. It is a cheap and safe way to expose students to clinical interaction. | 27 |
| H. It is required for APA approval. | 12 |
| | 6 |

*Item A was intended to represent a moderately negative purpose, based on a general, stereotyped concept of the clinician's training and role. While some may have selected it on this basis, others might well have construed the item as a mildly positive endorsement of the need for Rorschach training. Thus its final high position might be due to the ambiguity and generality of the item.

The items B G C J F in Table XVI are the statements which seemed to

us to reflect traditional reasons for using the test, and positive (pro-Rorschach) attitudes toward it. The difference between the composite scores of this group of items as a whole and items A D E H I taken as a group is significant at the one per cent level of confidence, using the Wilcoxon Matched Pair Signed Ranks Test (Siegal, 1956).

Another dimension of evaluation is revealed by responses to the following question: 'How much confidence do you have in the use of the Rorschach by a sophisticated clinician to do the following?' One dozen possible uses of the Rorschach were given and respondents were instructed to rate each item on a 1-5 scale from 'no confidence' through 'some' to 'complete confidence'. The ratings for each item were summed and the medians are presented in Table XVII.

The statements FBJEAK are those which to us seemed to reflect the most traditionally accepted functions of the Rorschach, and but for the intrusion of item G these statements would comprise the top half dozen. In order to test the significance of the apparent differences between the two groups of items, a comparison was made of the composite scores. The obtained difference by the Wilcoxon test was significant at beyond the one per cent level of confidence.

It seems clear that the instructors have greatest confidence in the use of the Rorschach for traditional clinical functions, that for these functions they have better than 'some confidence', and in some cases more than 'considerable' confidence. On the other hand for the non-clinical or less traditionally clinical functions (Items L, I, H, D, C) they have less than 'some confidence' and in several cases not even 'slight confidence'. Greatest confidence was expressed in what are probably the two most traditional diagnostic conceptions of the Rorschach and of the clinical psychologist (items F and B).

B. Interest.

It is one thing to have feelings and attitudes about the value of the Rorschach in general, and quite another to be personally interested in teaching it. Some 82 per cent of this group 'expect to include the Rorschach as a regular part of your future professional work', and 18 per cent say they do not. The next question: 'Would you prefer to teach some other course rather than the Rorschach?' brings out a notable contrast. To this item 46 per cent answer in the affirmative, 49 per cent say that they would not prefer

TABLE XVII—Rank Order (by Medians) of 'Confidence' Judgments Accorded Various Usages of the Rorschach

| Items | Medians |
|--|---------|
| F. To make psychodynamic diagnostic appraisals | .8 |
| B. To differentially diagnose, using psychiatric nosology | .8 |
| G. "To describe cognitive style | 1.2 |
| J. To decide whether supportive or intensive psychotherapy should be recommended | 1.3 |
| E. To predict overt, aggressive acting out | 1.6 |
| A. To predict success in individual psychotherapy | 1.7 |
| K. To estimate WAIS IQ scores | 1.9 |
| D. To predict high working productivity | 2.2 |
| H. To differentiate "creative" artists and scientists from "non-creative" ones | 2.4 |
| I. To decide whether a person should be selected for a sales training program | 3 |
| C. To select the best potential space pilots from a group of psychiatrically normal pilots of conventional airplanes | 3.1 |
| L. To predict successfully maintaining a weight reducing diet | 4 |

Note: - The letters on the left show the original order of presentation. To attain consistency among tables the original medians were subtracted from 5, the highest possible ranking. This results in all tables having "higher" scores represented by numerically lower values.

'We had regarded item G as a recent development of psychoanalytic ego psychology. Either our respondents did not agree that it was not traditional or perhaps they may have perceived some "roots" of cognitive style in Rorschach's original work.

something else, and the rest say "yes and no".

An examination of explanations written about the "yes" responses to the second question reveals that only a very few indicate a general rejection of the Rorschach as a reason for wanting to teach something else. For most, the issue is their interest in a change toward greater breadth in teaching activity. They want to move to other areas of clinically relevant teaching such as personality theory, methods of research and assessment, psychopathology, and psychotherapy.

C. Research.

Under the broad heading of "context" we have considered the position and structure of the Rorschach course in the department, and some characteristics of the people who teach it. We move now to a consideration of Rorschach research as related to the teaching of the course.

This section is comprised of a factual part and an evaluational one. The first concern is Rorschach research that the respondents themselves have done, then the extent to which they are aware of other Rorschach research conducted at their universities, and finally their reactions and opinions about such research.

In response to a question asking whether they had done research *on* the Rorschach 'that is, on its reliability, validity, scoring categories, etc.', 41 per cent of the 82 respondents

replied in the affirmative and 59 per cent indicated that they had not done such research. Of those who answered "yes" to this question the median number of publications 'on the Rorschach' was 2.25. The responses to the next question were similar. They were asked about 'research they had done *using* the Rorschach, for example, as a screening device, as a measure of personality, etc.' Thirty-eight per cent of 81 respondents answered "yes" and 62 per cent said "no". The median number of publications in this category was 1.8. Thirty-three of the respondents, or slightly over 40 per cent, answered no to both questions, indicating that they had done no research at all involving the Rorschach.

Tables XVIII and XIX present data on respondents' knowledge about the existence of past and present research of their universities, respectively *on* and *with* the technique. In general the figures in both areas are similar. There may be a slight trend for respondents to be more aware of research done *on* the Rorschach than with it. In approximately 30 per cent of the universities the respondents know of ongoing research in both categories.

Table XX presents results of the question about the influence of research *on* and *with* the Rorschach upon various aspects of Rorschach activity. It is clear that with the exception of the administration category, this group is saying that research

TABLE XVIII—Research *On* the Rorschach at the University by Someone Other than Respondent

| | Yes | No | Don't Know |
|--------------------------------------|-----|-----|------------|
| Presently ongoing (1963) | 32% | 56% | 12% |
| Completed in past five years | 43% | 40% | 17% |
| Completed between 6 and 10 years ago | 36% | 31% | 33% |

*On refers to such issues as reliability, validity, meaning of categories and scores, etc.

TABLE XIX—Research *Using* the Rorschach at the University by Someone Other Than Respondent

| | Yes | No | Don't Know |
|--------------------------------|-----|-----|------------|
| Presently ongoing (1963) | 30% | 53% | 17% |
| Completed in past five years | 37% | 40% | 23% |
| Completed six to ten years ago | 27% | 36% | 37% |

*Using refers to such matters as screening, categorizing of people, etc.

on the Rorschach has been significant for them. At first glance it might appear strange that 32 per cent of the respondents would say that research with the Rorschach does not influence their own research with the Rorschach. This enigma is resolved, however, when it is noted that of the 21 people in this category, 16 also report doing no research with the Rorschach. The other five report either one or two publications in one but not both of the two categories (research *on* and research *with*). It is apparent that one's research cannot be influenced by previous research, if one does no research.

Table XXI indicates their conception of the value of research on Rorschach. Validity, the interpretive process, and reliability are of greatest concern to our respondents, followed by scoring and report writing. The one area which this group does not deem important for research activity is administration. This is especially interesting in view of the data to be reported later in this report demonstrating great variability in such practices.

III. Content

This section of the report will be considered by some members of its audience the core of the results. While there is no doubt that they are basic,

these data should have greater meaning if considered within the context of the background characteristics previously described.

The section on content falls into five subdivisions: theory, textbooks, administration, scoring and interpretation, and report writing. Most of the questions have to do with actual practices of those teaching the course. For each question we requested that discrepancies be noted, but none were mentioned. Thus it is assumed, perhaps erroneously in some instances, that the respondents are teaching what they practice.

A. Theory.

In this section we have data on two different conceptions of the term "theory". We are concerned first with theoretical orientations toward the Rorschach, explicitly the "authorities" followed, and second with the general approaches to personality that the respondents use.

To the question, 'what system or whose approach to the Rorschach is taught', at first glance a surprisingly varied array of names seems presented. It was, however, a relatively simple task to categorize this abundance.

The one most meaningful figure in Table XXII is that of all the respondents only six fail to mention Klopfer

TABLE XX—Influence of Rorschach Relevant Research on Various Aspects of Respondents' Rorschach Activity

| | None | Slight | Significant | Very Significant |
|---|------|--------|-------------|------------------|
| Administration | 36% | 36% | 19% | 8% |
| Interpretation | 8% | 18% | 51% | 23% |
| Teaching | 5% | 23% | 39% | 32% |
| Research | 32% | 9% | 32% | 27% |
| Perception of the future of the Rorschach | 7% | 15% | 43% | 35% |

TABLE XXI—Importance of Further Research On Rorschach

| | Not Important | Slightly Important | Moderately Important | Very Important |
|---------------------------|---------------|--------------------|----------------------|----------------|
| Administration | 17% | 41% | 25% | 17% |
| Reliability | 15% | 15% | 29% | 41% |
| Validity | 5% | 7% | 15% | 73% |
| Scoring | 8% | 32% | 33% | 26% |
| Process of Interpretation | 5% | 8% | 17% | 70% |
| Report Writing | 10% | 29% | 39% | 23% |

TABLE XXII—Breakdown of Theoretical Approaches to Rorschach

| Approach | Frequency |
|--|-----------|
| Beck | 24 |
| Klopfer | 42 |
| Combination of Klopfer and Beck | 12 |
| Others (no mention of Klopfer or Beck) | 6 |
| | <hr/> 84 |

or Beck. A number of other names are mentioned such as Oberholzer, Rorschach, Piotrowski, Rapaport, and Schafer, but with few exceptions, always in combination with Beck and/or Klopfer. Disputations about the relative merits of different approaches aside, there is no question that dwarfing all others in this field are Beck and Klopfer.

After inquiring into the approaches which were currently used at the various universities, there followed a question about the length of time these had been employed. Responses to this question show that half of the schools have used their present approaches four years or less. An obvious possible explanation for such a large proportion of approaches to be so recently initiated is that the courses themselves are new. Further analysis of the data available on how long a Rorschach course has been offered in the university shows this to account for less than half of this figure. Thirty-nine institutions report that they have used the present approach four years or less, but only 18 have begun their course within that period of time. Thus at least 21 institutions which have used the present approach for four years or less have actually changed approaches during that time. Additional information bearing on the reasons for such changes comes from responses to the request that explanations be supplied for changes occurring since 1957. Of 30 respondents to this item, 20 attributed the cause to change in the instructor, four did not know why the change occurred, and six gave a variety of other reasons. The conclusion

that by and large most changes in approaches to the Rorschach are a function of staff changes is strengthened by the finding reported earlier, that in 91 per cent of the reporting universities, the choice of approach is left up to the instructor.

The dominance of Beck and Klopfer is again demonstrated by responses to the question: 'What . . . approach . . . did you originally learn?'. The figures are very similar to those presented in Table XXII. "Beck" was the original approach for 23 respondents, and "Klopfer" for 43. Ten of the remaining 20 mentioned either one or both of these names together with others, and only 10 made no mention of Beck or Klopfer. Of these, five mentioned Rorschach himself.

The item following this asks for the name of the institution at which the approach in question had been learned. The results from this question are a listing of a broad sample of North American and European universities as well as several clinical installations. Ohio State University has provided eight of our respondents with their approach to the Rorschach. City College of New York is mentioned five times, and University of Tennessee, University of Pittsburgh, University of California at Los Angeles, and New York University are the only universities mentioned three times. Forty-three other universities and colleges are mentioned once or twice. It is very clear that these instructors learned their original approach to the Rorschach in a great variety of institutions.

To the question, 'Was this original system different in any important way from the one you presently teach?', 44 per cent answered "yes". An examination of the explanations provided by 32 of these 36 people indicates that 10 specified changes in the realm of scoring, either changing to a different system, or changing to no scoring; four more seemed to be indicating scoring changes; three others said they have changed to systems more "popu-

TABLE XXIII—Categorization of Personality Theory Preferences

| Theory | Frequency | |
|--|-----------|----|
| Psychoanalytic (Freud and unspecified) | 12 | |
| Psychoanalytic—eclectic | 9 | |
| Sub-total | | 21 |
| Modified analytic—(neo-Freudian) | 21 | |
| Modified analytic—eclectic | 7 | |
| Sub-total | | 28 |
| Behavioral (i.e. learning theory) | 15 | |
| Behavioral—eclectic | 3 | |
| Sub-total | | 18 |
| Other—Includes a variety of individual references such as "European", "scientific", "existential" (3), "developmental", eclectic (7) | | 18 |
| Total | | 85 |

lar" than the one they learned originally. Not enough of the respondents gave reasons for their changes to justify generalizations.

Other facets of theory that were raised in the questionnaire were the instructor's theoretical orientation to personality, and the relationship of this approach to teaching Rorschach interpretation. The first question was, "To what theory of personality do you subscribe, if any?". The responses, as might be expected were highly diverse, but can be boiled down into broad, yet relatively discrete categories.

Table XXIII presents our attempt to summarize this data; unfortunately the richness of the raw material is lost in this effort. Psychoanalysis, modified analytic, and behavioral theories predominate. A striking characteristic of the respondents seems to be their reluctance to commit themselves to a unitary label for their theoretical approaches.

Table XXIV shows the degree to which personality theory is felt by the instructors to play a part in teaching interpretation. It is apparent that the largest plurality thinks personality theory essential, and this category together with the one immediately above it in the table accounts for three-fifths of the subjects.

B. Textbooks.

In asking respondents to 'list the textbooks which you assign in your

course in the order of their importance', it was assumed that a relatively short list of standard Rorschach manuals and texts would be obtained. We received, to our surprise, a vast array of titles and authors, many of which did not fit our perhaps too conventional conception of a textbook on Rorschach (e.g. Cronbach's—*Essentials of Psychological Testing*, Machover's—*Draw-a-Person* manual).⁶ In order to represent this array in some meaningful fashion, the books and authors mentioned are ordered according to frequency of first choices and accord-

TABLE XXIV—Extent to Which a Theory of Personality is Related to the Teaching of Rorschach Interpretation

| Category | Percent in Category |
|---|---------------------|
| Simply part of general background, not necessary for Rorschach interpretation | 18 |
| Of some peripheral use in Rorschach interpretation | 17 |
| Useful, worthwhile part of Rorschach interpretation | 24 |
| Essential part of Rorschach interpretation | 37 |
| Combinations of above* | 4 |

*Combinations of above" was not a category supplied to respondents.

⁶In wording this question, and with our assumption of a separate course on Rorschach, we failed to specify "textbooks on Rorschach," thus permitting some degree of ambiguity to enter. It seems possible that many respondents interpreted this question to refer to any books used in the course, rather than, as we intended, textbooks specifically on the Rorschach.

ing to frequency of being mentioned at all (Table XXV).

It is again evident that Klopfer and Beck are the authorities, that they dominate the field. It is also apparent that there is a considerable minority influence.

TABLE XXV—Ranking of Most Frequently Referred to Textbooks or Authors and Frequency of First Choices

| Test | Frequency mentioned | Frequency of first choices |
|-------------------------|---------------------|----------------------------|
| Klopfer, et al. (1954) | 58 | 38 |
| Beck | 45 | 18 |
| Schafer (1954) | 24 | 7 |
| Phillips & Smith (1953) | 17 | 0 |
| Anderson & Anderson | 17 | 3 |
| Rorschach | 13 | 4 |
| Rickers-Ovsiankina | 12 | 2 |
| Piotrowski | 10 | 1 |
| Klopfer & Davidson | 6 | 6 |

Note: - In addition 43 others were named less than 10 times.

C. Administration.

1. *Instructions.* The area of administration was covered by a series of closely inter-related questions which requested information about the administration of the Rorschach from the initial instructions through the inquiry. All of the questions with the exception of the first were answerable with a word or two; the first required the individual to write a paragraph. This requirement reduced the number of respondents, but despite the burden of the task a large number of people responded in considerable detail to this question which asked: 'please write your typical specific Rorschach test instructions'. The responses to this item were analyzed by what might be called "idea units". Each discrete idea in the instructions was written down. This resulted in a very large number of categories which were further grouped by putting together closely similar ideas. The purpose of this exercise was to demonstrate to the reader some of the diversity and similarity in the instructions used.

The variety in this array of instruc-

tions is impressive. Some people give minimal verbal instruction ("What is this?"), while at the other extreme there may be a detailed description of the nature of the stimulus material, some brief theoretical explanation for the test, encouragement to express freely "what comes to mind", reassurance that time does not matter, and that the subject is free to "do anything with the card that you wish". Quantitative differences in information provided is only one of the sources of variation in Rorschach instructions. There were many differences in language used to describe the subject's task. As an illustration we chose the word "see", a very commonly used one in these instructions, and below have simply listed the ways in which this verb is utilized in Rorschach instructions.

What do you see
(tell) what you might see
(tell) anything you see
(tell) what you can see
we find that people can see things
what you see is right for you
(tell) what sort of things you see
you will see things that others have and
probably new things
different people see different things

Another example of the variation in the connotative value of instructions is demonstrated in Table XXVI, which presents the key terms and expressions used in trying to inform the subject of his task. In each case the words preceding refer to activity of the subject ("what do *you* see?") or to features of the blots ("what do *they* resemble?").

TABLE XXVI—Terms Used to Convey to S His Task in Rorschach Situation

see
look like
might be
might represent
remind you of
what can you make out
resemble
suggest
think about
use imagination
might mean
could be

2. *Procedures and techniques.* Following this question on instructions was a lengthy series of questions, each referring to a specific detail of administrative procedure. In what follows we present a statistical summary of the responses to those questions.

While administering the Rorschach, 35 per cent sit facing, 17 per cent behind and 45 per cent to one side of the patient.⁷

While administering the Rorschach, 88 per cent hand the card to the patient and seven per cent lay it on the table.

The inquiry is conducted by two per cent after each card, by 94 per cent after all 10, and by one per cent not at all.

Location sheets are used by 86 per cent and are not used by 14 per cent.

Of the 86 per cent who use location sheets, 21 per cent typically show them to the patient, 53 per cent show it sometimes, and 26 per cent never do.

During the inquiry, 93 per cent typically have the patient look at the card and one per cent do not.

In administering the Rorschach, seven per cent deliberately conceal the number of cards in advance, 32 per cent tell the patient the number in advance, and 57 per cent allow him to estimate by seeing the pile of cards.

If the patient does not respond to the first card within approximately two minutes, 88 per cent encourage him to do so and 12 per cent do not.

If the patient does not respond on any further cards, 69 per cent will encourage them, and 29 per cent do not.

If only one response is given to the first card within approximately two minutes, 81 per cent encourage him to give more and 17 per cent do not.

If only one response has been given within approximately two minutes on any further cards, 45 per cent will en-

courage again, and 52 per cent will not.

If others in a team have already interviewed the patient, 51 per cent typically will interview him and 49 per cent will not.

If others have not interviewed him, then 77 per cent will interview and 23 per cent will not.

If the patient is interviewed in conjunction with testing, 36 per cent do this before testing, 26 per cent after testing, 33 per cent before or after, saying that it does not matter, and zero per cent do so during the testing.

If the Rorschach is given in a battery of tests, it is typically given first by 16 per cent, last by 20 per cent, as one of the middle tests by 50 per cent, and 14 per cent say that it does not matter and give it in any order.

In administering the Rorschach, 49 per cent typically test the limits, and 50 per cent do not. Of the 49 per cent who test the limits, 90 per cent, or some 37 respondents have included in their responses some description of their procedures and the conditions under which they test the limits. The variability in administrative procedure indicated by the 50-50 split on the question of whether limits are tested, is added to considerably by these responses which describe different techniques and present criteria for testing limits. In general respondents were more explicit about conditions under which limits would be tested than they were about how to test them. The following cover the bulk of considerations involved in the decision to test limits: limited number of responses; absence of determinants; omission of very expectable responses; with inhibited or resistive patients. The ways in which limits are tested are described in varying degrees of detail from "standard", through a complete description; with one exception there is a unanimous preference to do it after the inquiry. Few people gave details on techniques used.

With respect to what is recorded by

⁷Instances in this section where the summed percentages do not total 100 per cent are caused by a few subjects adding categories, or combining existing ones into a new one, neither of which we include because of their infrequency, and by the rounding off of fractions.

the examiner, everything said by him and the patient is recorded by 50 per cent; everything said by the patient only by 43 per cent; patients' responses as such by four per cent; and the gist of his responses by two per cent.

Forty-six per cent explicitly limit the number of responses allowed, and 54 per cent do not.

The time allowed for responding is limited by 14 per cent and 86 per cent do not limit it.

Reaction time of patient's first comment is recorded by 74 per cent, with 26 per cent not doing this.

Reaction time of patient's first response is recorded by 95 per cent, with five per cent not doing so.

The total time of patient's response is recorded by 68 per cent, with 32 per cent not doing this.

To measure the time, 52 per cent use a stopwatch, 40 per cent a wrist-watch, and five per cent estimate the time.

Twenty-six per cent ask questions during the inquiry other than those to elicit location and determinants, and 74 per cent do not.

If likely determinants are not given spontaneously or in response to one or two inquiry questions, 38 per cent typically inquire further, and 59 per cent do not.

In the inquiry, 89 per cent order their questions in the same order in which responses were given, five per cent use the reverse order, and four per cent go by the relative importance of responses.

Other modifications of 'standard administration techniques' are used by 14 per cent and are not employed by 86 per cent.

D. Scoring and interpretation.

The high degree of variability that characterizes the administration of the Rorschach also applies to scoring and interpretive procedures.

The Rorschach is typically scored by 88 per cent and not scored by 12 per cent.

A formal psychogram is typically constructed by 69 per cent and not made by 31 per cent.

A formal, normative approach in scoring form level (such as Beck's frequency tables) is used always by 29 per cent, usually by 25 per cent, occasionally by 26 per cent and never by 19 per cent.

A subjective approach to scoring form level, using one's own norms (as in the Klopfer approach) is employed always by 10 per cent, usually by 31 per cent, occasionally by 41 per cent and never by 19 per cent.

Of aspects they most rely on in making an interpretation, nine per cent emphasize the psychogram, 38 per cent content, 47 per cent both equally, and two per cent neither.

Intra-card sequence analysis is typically used by 54 per cent and not used by 45 per cent.

Inter-card sequence analysis is typically used by 56 per cent and not used by 43 per cent. (Of the 45 people who said "yes" to the first of these items and of the 47 who said "yes" to the second, 38 are the same individuals).

"Blind" interpretation is preferred by 28 per cent; as much additional information as is available is typically used by 65 per cent.

In the opinion of two per cent of the respondents, good interpretation of the Rorschach rests primarily upon knowledge of the test, 30 per cent believe that the user's knowledge of personality theory and psychopathology are most important, and 67 per cent that both are equally important.

E. Reporting of findings.

Two questions about report writing were included in order to survey opinions bearing upon the use of Rorschach results in the communication of findings. The first question was, "How should Rorschach test data be used in writing reports for psychiatrists and social workers?"; the second was identical except that it referred to clinical psychologists. On the basis of Table XXVII, two generalizations

TABLE XXVII—Uses of Rorschach Test Data in Reports for Different Professional Groups

| | Psychiatrists and Social Workers | | Other Clinical Psychologists | |
|--|--|-----|------------------------------------|-----|
| | yes | no | yes | no |
| A. Parts of formal psychogram (ratios, percentages, #s) should be given directly to justify most interpretations | 7% | 93% | 42% | 58% |
| B. Specific contents should be given directly to justify most interpretations | 15% | 85% | 41% | 59% |
| C. Parts of the psychogram should usually be used as illustrations | 31% | 69% | 52% | 48% |
| D. Specific contents should usually be used as illustrations | 64% | 35% | 76% | 24% |
| E. Test data should not appear in the report | 52% | 45% | 34% | 64% |

can be made easily. First, it is apparent that for our respondents, if data are to appear in the report they should be content data rather than psychogram data. This is more emphatic in the case of reports intended for the other professions, but with the exception of data used to *justify* rather than *illustrate*, applies also to reports written for psychologists. Second, it is clear that the respondents tend to prefer that if data are to be used, they should be employed to *illustrate* rather than to *justify* interpretations.

In the case of reports for other professions, only in response to items D and E ("specific contents should usually be used as illustrations", and "test data should not appear in the report") are there greater than 50 per cent of "yes" responses. It would appear then that the preference in writing reports for psychiatrists and social workers is toward presentation of findings without test data appearing, that when they appear the purpose should be to *illustrate* rather than to *justify*, and that the data used should be of content rather than form.

The preferences for reports destined for clinical psychologists indicated that data are still preferred for illustration rather than justification, but in every category a greater percentage of "yes" responses appears. What appears to be an exception is "E" where due to the unfortunate wording of

the item the meaning of a response is reversed. Here a *lower* percentage of "yes" responses carries the same implication as a *higher* percentage of "no" responses for the other items. The 34 per cent "yes" in "E" means that 34 per cent of the respondents are saying: "Yes, test data should *not* appear", while 66 per cent say they *should* appear in reports for psychologists. This contrasts with reports for psychiatrists and social workers, where, by a (small) majority the vote is against the use of data in reports. The general finding is that in reports for other psychologists there is a much greater tendency to want the data available than there is in reports for non-psychologists.

DISCUSSION

The context of Rorschach instruction in university departments reflects the overall dilemma of clinical training. While Rorschach is clearly the most emphasized diagnostic technique, in many departments instruction is being conducted only at an introductory level. The types of courses offered, the teacher-student ratios and the course contents are consistent with introductory goals rather than with the development of more advanced clinical skills. This finding provides the setting in which all other findings should be considered. A minority of departments provide exceptions to the above, and many other psychologists

advocate advanced training (McCully, 1965).

It comes as no surprise that most departments are offering instruction in the Rorschach approaches of Klopfer and of Beck. Somewhat surprising, however, is that other more recent approaches provide almost no competition as primary sources although many are used to supplement Beck and Klopfer. Generally, departments are not committed to a specific approach. The decision is left up to the instructor, and approaches often change with new instructors. Many psychologists would vigorously defend this practice as absolutely necessary for maintaining academic freedom. This issue aside, however, on what basis could a group of departmental members make a rational, defensible choice?

The characteristics of the teachers whom the departments provide undoubtedly reflect not only the values and goals of the department but also the opportunities and limitations experienced by our profession at this time. The instructors represent a cross section of ages, professional experience and academic ranks with many experienced, senior people included. On the other hand, the minimum requirement apparently is Ph.D. training, with 35 per cent of the group having had relatively little further experience, 80 per cent having no post-doctoral Rorschach course work, and 60 per cent little or no post-doctoral supervision.

What is the more immediate context of Rorschach instruction within the background of the departmental milieu, that is what are the values and attitudes of the instructors toward the Rorschach? Their expressed reactions were notably positive, with all but a very few indicating that the test should continue to be taught. Generally, they supported this judgment by most frequently selecting what we regarded as traditional, "pro-Rorschach" purposes for giving Rorschach instruction, and by expressing confidence in

what we had selected as traditional uses of Rorschach testing. The contrast between the 82 per cent of instructors who expected to continue teaching the Rorschach and the 46 per cent who preferred to teach something else provided quite an explicit opportunity for the expression of negative attitudes if they were present. Such expressions, however, were only rarely given.

The instructors' attitudes toward Rorschach research are of interest because this controversial topic is apt to stimulate strong reactions. Almost 60 per cent of the sample had done research either using the Rorschach or investigating some aspects of the test itself. The majority professed to be significantly influenced by research in their clinical interpretation, teaching and research. The majority also indicated that it was important to have further studies on reliability, validity, scoring, interpretation and report writing. In view of the extraordinary variability in practices of administration, it is paradoxical that the majority of instructors were not significantly influenced by research in this area, nor did they believe it important to have additional research. One becomes very curious as to what specific effects research has had. In spite of voluminous studies with negative findings and research reviews which are extremely critical (Buros, 1959, pp. 276-279), these instructors supported Rorschach practices in a manner expected of those who reject such research as inappropriate and irrelevant to Rorschach work. It is possible that our respondents solve the problem by judicious selection of studies. It is also possible that while these respondents may be knowledgeable about Rorschach research, the methods which they teach and use may have not been as influenced as their reports would indicate.

Next, let us consider the implications of what is being taught in Rorschach courses. It is important to note that even a minority position ex-

pressed by our respondents is very significant since they are providing the basic instruction for future clinicians. To illustrate, although one might agree or disagree with the 12 per cent who teach their students not to score the Rorschach, and with the 31 per cent who do not use a psychogram, and although one might be concerned or not about these deviations from "classical procedure", each person in the minority group will train a good number of people in his minority way, thus proliferating variability.

Most students are learning the Rorschach systems of Beck or of Klopfer, coupled with psychoanalytic, modified analytic or behavioral personality theories. The majority of instructors regard personality theory as important for teaching Rorschach interpretation although 18 per cent did not. It is hard to imagine how interpretation could be taught without relying on some general hypotheses and assumptions about personality. Where would the language which they use to describe people come from? Perhaps this minority chose to define "personality theory" in a more restricted, formal way than did the authors of the questionnaire.

The data on Rorschach instructions are especially interesting in their revelations of considerable variation among examiners in length of instructions, in degree and kind of information provided in these instructions, and inferentially, in the "sets" created by these variations.

Marked variability was present in other aspects of administration as well as in scoring and methods of interpretation. Of 27 administration items, 18 failed to have 80 per cent or more of the respondents in any one category. Similar diversity prevailed in eight of nine items on scoring and interpretation.

A variety of "standard" systems of administration, scoring and interpretation is not a virtue in and of itself, and has very obvious disadvantages. Such heterogeneity is desirable only if

it leads to improved clinical utility, reliability, validity and the like. These "improvements" are not apparent except perhaps to those who champion a particular system. On the contrary, Rorschach variations often appear to be more a matter of traditional allegiance and personal taste than they are a function of systematically developing and comparing alternative approaches.

In addition to differences between various approaches is the question of how consistently a single clinician should apply a specific system. A typical position is that methods of administration, scoring and interpretation should be sufficiently flexible to meet the needs of almost any given patient in almost any particular situation. Consequently, uniform procedures become viewed as restrictive obstacles. Although using the Rorschach demands a great deal of skill and responsibility under the best of circumstances, significant alterations to accommodate to unique conditions places even greater demands upon the clinician. At some point such changes and demands simply become unrealistic. In spite of good intentions to the contrary, and with all due respect to "developing one's own personal norms", the effects of such changes are extremely difficult to evaluate. To what extent do clinicians systematically develop personal norms as opposed to passively acquiring more experience as they get older? These two processes are not identical, and thus greater and greater "flexibility" is not necessarily advantageous.

Given the variability found in this study, it is ironic that many of the respondents want the data included in reports to psychologists in order to illustrate or even to justify the interpretations. What actually is gained in a report by adding "broken bears", laughing clowns" and "startled animals" when the reader has little idea of how these responses were elicited?

Psychologists have a history of self-examination, and we currently are ex-

periencing a peak of this activity with respect to clinical training. The results of the present study provide considerable information about Rorschach instruction which hopefully will prove useful in this continuous process of self scrutiny.

REFERENCES

- Beck, S. J. *Rorschach's test, Vol. I: Basic processes*. New York: Grune and Stratton, 1944.
- Beck, S. J. Review of the Rorschach. In: O.K. Buros (ed.), *The fifth mental measurements yearbook*. Highland Park, New Jersey: The Gryphon Press, 1959, 273-276.
- Buros, O. K. (ed.) *The fifth mental measurements yearbook*. Highland Park, New Jersey: The Gryphon Press, 1959.
- Committee on Training, Annual Report Section, *J. proj. Tech.*, 1959, 3, 97-98.
- Faterson, H. F., and Klopfer, B. A survey of psychologists' opinions concerning the Rorschach method. *Rorschach Res. Exch.*, 1945, 9, 23-29.
- Kelly, D. M. Survey of the training facilities for the Rorschach method in the U.S.A. *Rorschach Res. Exch.*, 1940, 4, 84-87.
- Kelly, D. M. A questionnaire for the study and possible standardization of the technique of the Rorschach method. *Rorschach Res. Exch.*, 1941, 5, 62-66.
- Kelly, D. M. Requirements for Rorschach training. *Rorschach Res. Exch.*, 1942, 6, 74-77.
- Klopfer, B. Instruction in the Rorschach method. *J. consult. Psychol.*, 1943, 7, 112-119.
- Klopfer, B., Ainsworth, Mary D., Klopfer, W. G., & Holt, R. R. *Developments in the Rorschach technique, Vol. I: Technique and theory*. Yonkers: World Book Company, 1954.
- Lesser, E. Popularity of Rorschach training in the United States. *J. proj. Tech.*, 1961, 25, 179-183.
- McCully, R. S. Current attitudes about projective techniques in APA approved internship training centers. *J. proj. Tech.*, 1965, 29, 271-280.
- Monroe, R. L. Considerations on the place of the Rorschach in the field of general psychology. *Rorschach Res. Exch.*, 1945, 9, 30-40.
- Phillips, L. and Smith, J. G. *Rorschach interpretation: Advanced technique*. New York: Grune and Stratton, 1953.
- Piotrowski, Z. A. *Perceptual analysis*. New York: Macmillan, 1957.
- Rapaport, D., Schafer, R., & Gill, M. *Diagnostic psychological testing, Vol. II*. Chicago: Year Book Publishers, 1945.
- Schafer, R. *Psychoanalytic interpretation in Rorschach testing*. New York: Grune and Stratton, 1954.
- Siegel, S. *Nonparametric statistics for the behavioral sciences*. New York: McGraw-Hill, 1956.
- Toomey, L. C., and Rickers-Ovsiankina, Maria A. Tabular comparison of Rorschach scoring systems. In: Rickers-Ovsiankina, Maria A. (ed.), *Rorschach psychology*. New York: John Wiley and Sons, Inc., 1960, 441-465.
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Received May 4, 1965

Revision received November 20, 1965.

Universal Popular Responses to Inkblots in Five Cultures: Denmark, Germany, Hong Kong, Mexico and United States

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Summary: Klopfer and Kelly in 1942 predicted that "a sufficient number of frequency counts" would indicate universality of response to certain inkblots by groups, e.g. cultural. Group administration and the development of a computer based scoring program has enabled the authors to examine adequate frequencies across five cultures (Denmark, Germany, Hong Kong, Mexico, United States) and validate the prediction. Using Holtzman's criterion for Popular, universality was found in 23 inkblots and near-universality in 10 additional. The core concept *person* accounted for the populars in 15 instances; other concepts were *animal*, *fowl*, *face or mask*, *person-riding-animal*, *landscape*, *butterfly or moth*, *seahorse*, *fish*, and *rain or storm*. Across all five cultures there was much more commonality than differences in perception of inkblots.

INTRODUCTION

Computer scoring of inkblot responses (Gorham, 1965; Moseley, Gorham and Hill, 1963) makes the collection of large population samples a relatively easy matter. For the purposes of this paper, five widely separated cultural samples are compared on one variable, Popular, to determine cross-cultural similarities in perceptual response.

BACKGROUND

The use of inkblots in testing has given the psychologist a tool of measurement which has brought forth volumes of research on the individual administration of such tests. However, the cost of collecting, scoring and translating data for large samples for cross-cultural purposes has made it virtually impossible to carry on large scale studies. The first big advance in this direction came with the group method of administration, which has proven its value in many fields of testing. With specific reference to inkblot techniques, Swartz and Holtzman (1963) point out that for large scale research projects "the advantages of a group method far override whatever disadvantages may be associated with it."

The more recent advent of the com-

puter age has now made it possible to combine computer scoring with the group method of administration with the result of greatly facilitating large scale cross-cultural studies.

Klopfer and Kelly (1942) comment that "no Rorschach expert has yet been able to assemble and tabulate a sufficient number of records to claim universal validity for his frequency counts." Further, in their discussion of Universal and Group Frequency they devote a section to this which reads in part as follows:

"In this sense, a specific frequency distribution might be established for any group, whether the group is determined by age, cultural environment, educational background, or sex. The value of establishing such a group frequency for any concept is undeniable. However, it does not detract from the importance of the concept of *universal frequency*. To every Rorschach expert who has seen records from many different groups it is rather surprising how many concepts even the most divergent groups have in common. Thus it seems worthwhile at least to aim at the establishment of a universally representative frequency distribution of concepts."

It is to this last aim, mentioned by Klopfer and Kelly, that we have directed our research on Universal Populars. Klopfer and Kelly (1942, p. 178) note that in the absence of a frequency tabulation of universal validity, selected popular concepts would be used for statistically verified

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ones. Now, the availability of such a frequency tabulation makes it possible to arrive at Universal Populars with statistically verified frequencies.

Gorham (1965) and Moseley, Gorham and Hill (1963) have developed a computer based method of scoring group administered protocols of the Holtzman Inkblot Technique (Holtzman, 1958; Holtzman et al., 1961) hereinafter referred to as HIT². The method is designed to estimate scores on 17 basic Holtzman variables. These are now satisfactorily simulated by the computer economically and with an accuracy approaching hand scoring.

Because of the economy of group administration and computer scoring it has been possible to rapidly collect large samples. As a part of the HIT project, samples are being collected from many cultures throughout the world, and from the larger group the five cultures for this study were selected. In this study, one variable, Popular, was compared across the five cultures.

One aspect of the computer output of scores is a list of all words used more than once in a given protocol. This aspect of the output makes it possible to have the computer score by "blots" rather than by subjects, by considering all the responses to each inkblot, as though they constituted subjects. Such an output makes it possible to examine the verbal output of large samples by merely looking at the frequencies of each of the words used by the subjects to describe a particular inkblot. In this study this method was used to generate and compare the populars found in the five separate cultural samples of 100 subjects each. If it were not for the computer program, a study of this type would be virtually impossible, since it would be necessary to analyze 45 responses from

each of 500 subjects, or a total of 22,500 responses.

METHOD AND MATERIALS

An investigator in each of the following cultures: Mexico, Germany, Hong Kong, Denmark and the United States, administered the Holtzman Inkblot Technique, Form A, group method, to a sample consisting of 100 college students. The materials used consisted of a set of 45 Form A slides, a slide projector, projector screen, and individual Holtzman Inkblot Technique Record Forms A. The investigator read standard instructions for group administration of the HIT prepared for this project. Their directions were only slightly different from those developed by Swartz and Holtzman (1963). For the administration of the test, the time was modified to fit within the academic hour of 50 minutes. Upon receipt of the protocols from each of the investigators, the protocols were keypunched for the computer program³. The computer output provided the data on all five samples scored blot-by-blot, and all words used in each of the 45 responses of all 500 subjects, were listed on a printout, from which the data were analyzed (See Table 1).

Table I, giving a list of all the words used in the 100 Mexican and 100 Hong Kong protocols, represents only a portion of the information available for each of the five cultures, but shows how those words were extracted which were considered for the core concept of Popular for any individual blot. Holtzman, Thorpe, Swartz and Herron (1961), in order to arrive at a numerical criterion for a response to be judged popular, and "to yield a variable with good psy-

³The foreign samples were administered in the native language, translated into English and then keypunched and scored as English protocols. In the case of the Hong Kong subjects, however, a second sample of 100 students took the test in English; no significant differences were found between words produced nor scores generated by the two groups.

²This project is jointly supported by the Veterans Administration and an NIMH grant (No. 10,273) of which Dr. Gorham is the principal investigator.

TABLE I—Words Used in Responses to Blot 34

| 100 Mexican Responses | | | 100 Hong Kong Responses | |
|-----------------------|--------------|----------------|-------------------------|---------------|
| 12 and | 4 door | 6 pointing | 2 ancient | 2 happily |
| 3 bell | 2 hand | 2 signals | 3 clowns | 8 of |
| 6 dance | 10 in | 3 their | 7 fighting | 3 something |
| 2 fighting | 28 men | 3 who | 2 kneeling | 4 with |
| 2 hold | 8 people | 40 a | 7 quarrel | 7 at |
| 2 making | 2 shield | 2 cupids | 3 turtle | 19 each-other |
| 2 open | 2 temple | 2 face-to-face | 3 and | 2 home |
| 2 same | 2 trying | 2 his | 5 combat | 20 persons |
| 6 something | 4 arch | 5 kneeling | 2 for | 3 the |
| 2 through | 2 children | 2 point | 5 men | 2 women |
| 8 with | 4 each-other | 2 somebody | 18 scolding | 2 bee |
| 8 angels | 2 head | 3 the | 36 two | 2 enemies |
| 2 bow | 2 object | 2 winged | 3 are | 2 imps |
| 9 dancing | 6 persons | 7 at | 4 dancing | 4 pointing |
| 3 figures | 3 shields | 6 dancers | 3 gate | 2 together |
| 2 horseshoe | 2 that | 4 fat | 2 narrow | 6 between |
| 2 man | 59 two | 8 holding | 2 shields | 2 fat |
| 2 scale | 2 around | 3 little | 5 warriors | 5 in |
| 2 statues | 2 church | 19 running | 11 a | 4 quarreling |
| 13 to | 3 entrance | 2 some | 2 down | 3 to |
| 6 an | 2 heads | 3 they | | |
| 2 chicken | 14 of | 2 wishbone | | |

Note: These frequencies were taken from the computer output "List of redundant words and their counts."

TABLE II—Universal Populares Identical to Holtzman Populares

| | | Frequencies ^a by Cultures | | | | |
|----------|----------------------|--------------------------------------|--------------------|--------------------|----------------------|-------------------|
| Blot No. | Core Concept | U.S.A. N = 100 | Denmark N = 100 | Germany N = 100 | Hong Kong N = 100 | Mexico N = 100 |
| 1 | Person | 46 | 43 | 43 | 70 | 73 |
| 2 | Person | 81 | 73 | 66 | 62 | 93 |
| 4 | Person riding animal | 32 | 34 | 43 | 16 | 28 |
| 10 | Person | 52 | 52 | 38 | 26 | 37 |
| 12 | Person | 28 | 38 | 29 | 21 | 53 |
| 14 | Person | 18 | 39 | 30 | 19 | 26 |
| 19 | Person | 69 | 73 | 70 | 30 | 77 |
| 24 | Landscape | 16 | 28 | 22 | 33 | 29 |
| 25 | Person | 41 | 49 | 41 | 41 | 61 |
| 34 | Person | 55 | 77 | 76 | 57 | 69 |
| 42 | Butterfly | 27 | 22 | 70 | 35 | 24 |
| 44 | Human face or mask | 42 | 40 | 34 | 21 | 21 |
| 45 | Person | 50 | 57 | 37 | 24 | 50 |

^aFrequencies were generated from the computer output of redundant words, which only listed words used more than once by this sample of respondents. Therefore, the frequencies are close approximations but not actual values.

chometric qualities" set an arbitrary cutting off point of "at least one out of every seven protocols". It is this criterion which was used.

All the words used in each blot, by all the subjects, were examined and the greatest word frequencies noted and identified for core concept. If, for example, the core concept was *person*, all words in that category were underscored. If the total number of words with the same core concept then equalled the criterion of 14

out of one hundred responses, it was listed as a Popular for that blot. By referring to Table I, where the words are underscored for the core concept of *person*, and then referring to Table II, under Blot 34, the reader will find the core concept of the Popular for that blot, along with the frequencies for each sample, or culture.

Each of the samples was checked blot-by-blot for a Group Popular. When all five samples had the same Group Popular, it was listed as a Uni-

TABLE III—Additional Universal Populars

| Blot No. | Core Concept | Frequencies* by Cultures | | | | |
|----------|------------------------|--------------------------|--------------------|--------------------|----------------------|-------------------|
| | | U.S.A. N = 100 | Denmark N = 100 | Germany N = 100 | Hong Kong N = 100 | Mexico N = 100 |
| 6 | Head or face of person | 22 | 15 | 21 | 15 | 29 |
| 17 | Person | 24 | 55 | 42 | 32 | 24 |
| 18 | Person | 27 | 43 | 31 | 32 | 44 |
| 21 | Fowl, often a duck | 49 | 38 | 32 | 22 | 47 |
| 26 | Person | 29 | 23 | 14 | 18 | 25 |
| 27 | Duck or goose | 40 | 16 | 25 | 69 | 69 |
| 30 | Rain or storm | 25 | 44 | 36 | 16 | 20 |
| 31 | Animal | 15 | 18 | 17 | 24 | 23 |
| 37 | Fowl | 19 | 39 | 36 | 56 | 36 |
| 41 | Person | 34 | 45 | 16 | 24 | 54 |

*Frequencies were generated from the computer output of redundant words, which only listed words used more than once by this sample of respondents. Therefore, the frequencies are close approximations but not actual values.

TABLE IV—Near-Universal Populars

| Blot No. | Core Concept | Frequencies* by Cultures | | | | |
|----------|--------------------|--------------------------|--------------------|--------------------|----------------------|-------------------|
| | | U.S.A. N = 100 | Denmark N = 100 | Germany N = 100 | Hong Kong N = 100 | Mexico N = 100 |
| 9 | Animal | 28 | 30 | 46 | 13 | 33 |
| 11 | Butterfly, or moth | 13 | 25 | 28 | 22 | 13 |
| 22 | Seahorse | 11 | 17 | 26 | 26 | 14 |
| 29 | Person | 24 | 14 | 6 | 14 | 34 |
| 33 | Fish | 23 | 37 | 40 | 12 | 35 |
| 35 | Face, or head | 18 | 25 | 28 | 12 | 19 |
| 38 | Butterfly | 16 | 8 | 14 | 16 | 14 |
| 39 | Animal | 22 | 36 | 10 | 33 | 25 |
| 40 | Person | 16 | 10 | 22 | 20 | 26 |
| 43 | Animal | 21 | 37 | 24 | 12 | 47 |

*Frequencies were generated from the computer output of redundant words, which only listed words used more than once by this sample of respondents. Therefore, the frequencies are close approximations but not actual values.

versal Popular. When all 45 blots had been examined for Universal Populars a comparison was made to ascertain how many of the cross-cultural Universal Populars would validate the original Populars established by Holtzman, Thorpe, Swartz and Heron (1961) from the normative American sample of 304 subjects. The procedure was carried through for all the blots across all five cultures to discover additional Universal Populars (See Table III). When there was no Universal Popular, but where there was sufficient agreement on the core concept, these blots were labeled Near-Universal Populars (See Table IV).

RESULTS AND DISCUSSION

It was possible to validate 13 of Holtzman's 25 original Populars, by obtaining a Universal Popular iden-

tical to Holtzman's Popular, across all five of the cultures. Of the remaining 12 of Holtzman's Populars there were eight with a very close approximation of his core concepts for Populars. Four of the eight appear as Additional Universal Populars (Table III) and four are included in Table IV as Near-Universal Populars.

For the computer scoring each word was considered as being statistically independent. In the validation of Holtzman's Populars, e.g. "person riding animal" on blot 4 (Table II) scored for Popular were only those individual words which equated "person-riding-animal", e.g. horseman, or rider. The frequencies did not include the number of individual men and horses, even when the total of men and horses might have equalled a greater frequency of "men-riding-horses."

The same principle of scoring for Popular was used throughout the 45 blots, and the Popular for Blot 24 (Table II) was scored for "Landscape" only on those words which definitely had a core concept of *landscape* and did not include such words as bushes, sand dunes, trees or plants.

Although using Holtzman's criterion we were conservative in the scoring for Popular and used only those words about which there would be little or no doubt regarding the universal core concept. It was felt that within one culture the concept of the word "god" might equal "person" but that this might not hold true within another culture. This will be discussed more fully under a section devoted to the concept of *Person* as a Popular response.

By examining the data it was found that apparently on some of the blots the stimulus quality of the inkblot was so much the same that many subjects in all of the five cultures in their perception of the inkblots narrowed the category, or concept, to a specific word or two, e.g. on Blot 27 (Table III) "Duck" or "Goose" was the Popular response, and almost no other type of fowl was mentioned. However, on Blot 21, (Table III) while "Duck" or "Goose" was given as a response by some of the subjects in each of the cultures, the core concept was the larger category of "Fowl" and there was a wide divergence in the specific way in which the inkblot was perceived, e.g. the following words, or their plurals, were among those used to describe the image:

| | | |
|---------|---------|---------|
| | goose | plover |
| bird | hen | rooster |
| chicken | heron | stork |
| cock | lapwing | swallow |
| crane | ostrich | swan |
| duck | peacock | turkey |
| egret | pigeon | |

The Mexican subjects saw a preponderance of ostriches, whereas the Danish subjects saw the inkblot in a less differentiated way and more frequently used the larger category of "bird"

to describe what they saw.

When the stimulus apparently was more ambiguous a considerably larger divergence of nouns and adjectives was found, and in some instances, at the opposite extreme, on the more ambiguous blots there was a paucity of words.

From Table IV it can readily be seen that on each of the nine blots there is considerable agreement in the way the inkblots were seen. It will also be noted that in several instances, with an additional two or three responses (out of a possible 100 responses in each sample), additional Universal Populars would have been established (see in particular the frequencies for Blots 9, 33, 35 and 43 of Table IV). It is quite conceivable that the problem of translation is a factor which would have a bearing on the core concept of the words used. The translator may have used a word or words which had a slightly different connotation than our core concept, e.g. "a large ugly fish" may have been translated as "a sea monster" in which case it was no longer within the concept of "a fish". Likewise, face or head might have been translated as "profile".

The core concept of a *person* accounted for 16, or 50 percent, of the 32 Universal or Near-Universal Populars. For the core concept of *person*, only those words which definitely fitted the core concept of "a person" were used. In Table V are listed those words representative of *person*, which were included in the responses of some subjects in all five of the cultures. In arriving at the frequencies for a Popular on *person* we were conservative and tried not to include words on which there would be doubt as to their core concept.

Some of the words originally counted for *person* might not have been used as nouns, and in the case of others there was a question of the real core concept. The entire list was examined and those words which were ambiguous in meaning were removed.

TABLE V—Words Used in the Core Concept of "Person" as a Popular Response

| | | | | |
|-----------------|--------------|--------------|--------------|------------|
| acrobat | devil | hangman | Neptune | scholar |
| Adam | diver | harlequin | noblemen | seamen |
| admirer | Don Quixote | hunter | nun | shicks |
| angel | drunkards | Indians | nymphs | sons |
| announcer | dwarf | icemen | obstetrician | sorcerer |
| archeologist | Eskimoes | jesters | officer | Spaniard |
| athlete | esquines | jockeys | oldsters | spectator |
| barbarian | Eve | Johnny | orphan | spinster |
| Bavarians | exorcists | judges | owner | sprinter |
| Bedouins | executioner | king | participants | swordsmen |
| bishop | fairy | knight | peasants | Tarzan |
| botanist | farmer | Kruschev | person | thief |
| bullfighter | fighter | lady | personages | Thumbelina |
| boy | figure | Laplender | pilgrims | toreadors |
| camper | Fakir | Leprechaun | pixies | trapper |
| canibal | frogman | Lilliputians | polcemen | trull |
| chambermaid | generals | lords | Pope | Victoria |
| charwoman | gentleman | lovers | pranksters | vedettes |
| Charles Chaplin | gentlemen | lumberjack | preachers | virgins |
| child | ghosts | madcaps | priests | wanderer |
| children | girl | maid | princess | warrior |
| clown | goblin | maiden | prophet | widow |
| comrades | Goethe | man | rider | witch |
| cooks | golfers | managers | Romans | wizard |
| coolies | gossipers | mayor | Russians | woman |
| Cubans | grandfathers | men | saint | women |
| dancer | gymnast | Negroes | Santa Claus | woodcutter |
| DeGaulle | hunchbacks | Nehru | scientist | wrestler |

This resulted in revising the frequencies downward, but produced a much more basic list of words from which to score for Popular on the core concept of *person*.

The word "native" was dropped from the list of words for *person* because in referring back to the original protocols it was found that "native" as a rule was used as an adjective, e.g. "native hut", "native dancer", or even "native surroundings". However, in the plural form *natives* there was little doubt the word referred to the concept of *person*. Similarly, such words as Indian, Chinese, Mongolian and Burmese were excluded since there was no way of knowing whether the words had been used as a noun for a person, or were adjectives.

With reference to the word "figure", this was retained as representing a *person*. Upon referring back to the original protocols *figure* invariably referred to a person.

Such words as centaur or mermaid were not counted since it is a moot

point whether these represent a *person*. (It happens that the mermaid in the harbor of Copenhagen was definitely patterned after a woman who is still a resident of that city, but it might be argued whether all mermaids can be said to be people!)

Likewise, drastic revision was made of the frequencies for *person* when such responses as "god", "devil", "Buddha" were removed from the list of words representative of *person*. It becomes a matter of deciding whether in any culture such responses represent a concept, or an anthropomorphic figure, or even whether in some instances the respondent might have been referring to a statue, in which case it would not be scored for *person*.

SUMMARY

Table VI summarizes the findings. From this table it can be seen that on 24 of the 25 original Holtzman Populars, 13 are identical to the Holtzman Popular in core content, and 11 have either a very close approximation of

TABLE VI — Comparison of Holtzman and Universal Populars

| Blot No. | Core Content of Holtzman Popular | Core Content of Universal Popular | Comment |
|----------|----------------------------------|-----------------------------------|-----------------|
| 1A | Person | (Same) | |
| 2A | Person | (Same) | |
| 4A | Person riding animal | (Same) | |
| 5A | Face of person | | P on 3 cultures |
| 6A | | Head or face | |
| 9A | | Animal | P on 4 cultures |
| 10A | Person | (Same) | |
| 11A | Butterfly, moth | (Same) | P on 4 cultures |
| 12A | Person | (Same) | |
| 13A | Grass | | P on 2 cultures |
| 14A | Person | (Same) | |
| 17A | Person's face | Person | |
| 18A | | Person | |
| 19A | Person | (Same) | |
| 21A | Duck, person | Fowl, often a duck | |
| 22A | | Seahorse | P on 4 cultures |
| 24A | Landscape | (Same) | |
| 25A | Person | (Same) | |
| 26A | | Person | |
| 27A | Duck | Duck or goose | |
| 28A | Person | | |
| 29A | | Person | P on 4 cultures |
| 30A | Hut | Rain or storm | |
| 31A | | Animal | |
| 33A | Fish | (Same) | P on 4 cultures |
| 34A | Person | (Same) | |
| 35A | | Face or head | P on 4 cultures |
| 37A | | Fowl | |
| 38A | | Butterfly | P on 4 cultures |
| 39A | | Animal | P on 4 cultures |
| 40A | Person | (Same) | P on 4 cultures |
| 41A | Woman with arms spread | Person | |
| 42A | Butterfly | (Same) | |
| 43A | Animal | (Same) | P on 4 cultures |
| 44A | Human face or mask | (Same) | |
| 45A | Person | (Same) | |
| Total | 26 on 25 Blots | 33 on 33 Blots | |

core content or at least two or more groups have the same Group Popular as appeared in the Holtzman Populars. Thus, we can confirm Klopfer and Kelly's (1942, p. 178) statement "it is rather surprising how many concepts even the most divergent groups have in common." This holds true at least for the five cultures in this study, where it was found that individuals regardless of their cultural background saw essentially the same objects in the HIT series of 45 inkblots.

It is planned that future studies will show some of the differences across these five cultures. Mexican subjects saw the inkblots most frequently as "two" images, and the familiar American word "barbecue" appeared at

least 7 times in the Hong Kong sample and was never used in the American sample nor did it appear in any of the other samples than Hong Kong. Such are the interesting aspects to be investigated in future cross-cultural studies where the computer can furnish material economically to make this kind of cross-cultural comparison and analysis possible.

REFERENCES

- Gorham, D. R. The development of a computer scoring system for inkblot responses. *Proceedings of the Ninth Inter-American Congress of Psychology*. Miami, Florida, 1965 (in press).
- Holtzman, W. H. *Holtzman inkblot technique*. New York: Psychological Corp., 1958.
- Holtzman, W. H., Abbott, Elaine, Reinchr, R. C., & Moseley, E. C. Comparison of an

- experimental group method and the standard individual version of the Holtzman Inkblot Technique. *J. clin. Psychol.* (Special Monograph), April 1963.
- Holtzman, W. H., Thorpe, J. S., Swartz, J. D., & Herron, E. W. *Inkblot perception and personality*. Austin: University of Texas Press, 1961.
- Kaplan, B., & Lawless, R. Culture and visual imagery; a comparison of Rorschach responses in eleven societies. In Spiro, M. E. (Ed.) *Context and meaning in cultural anthropology*. New York: Free Press, 1965.
- Klopfer, B., Ainsworth, Mary, Klopfer, W. G., & Holt, R. R. *Developments in the Rorschach technique*, Vol. 1, *Technique and theory*. New York: World Book Company, 1954.
- Klopfer, B., & Kelley, D. M. *The Rorschach technique*. New York: World Book Company, 1942.
- Lindsey, G. *Projective techniques and cross-cultural research*. New York: Appleton-Century Crofts, 1963.
- Moseley, E. C. Some results of cross-cultural computer scoring of Mexican, Panamanian, Chinese and American students. *Proceedings of the Ninth Interamerican Congress of Psychology*, Miami, Florida, 1965 (in press).
- Moseley, E. C., Gorham, D. R., & Hill, Evelyn. Computer scoring of inkblot perceptions. *Percept. mot. Skills*, 17, 498, 1963.
- Swartz, J., & Holtzman, W. H. Group method of administration for the Holtzman Inkblot Technique. *J. clin. Psychol.*, 19, 433-441, April 1963.
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- Received September 8, 1965
Revision received October 28, 1965

An Empirical Study of the Validity of the Picture Story Completion Test of the IES Test¹

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The Picture Story Completion test (PSC) of the IES (impulse-ego-superego) Test (Dombrose and Slobin, 1958) is a quickly administered, objectively scored instrument. It consists of 13 sets of drawings, each having a story group of two or three drawings, and three alternative endings representing the IES triad. The subject is instructed to "finish the story by using one of these three pictures." The maximum possible score is 13, one for each set.

According to Dombrose and Slobin (1958), the PSC is one of the two parts of the IES which is most successful in discriminating among adult normals, neurotics, and psychotics. Their data show hypothetically expected trends in mean scores over these groups for I and E, while S is equivocal. This may reflect the considerably lower reliability of S reported by Dombrose and Slobin, and confirmed by Rankin and Johnston (1962). However, if the findings for I and E can be supported, the test could be very useful in differential diagnosis.

There is no published report which reflects directly on the Dombrose-Slobin data. In the few, available published studies, the PSC has not done well, though it is true that the samples involved were small. On the positive side, Bortner (1963) found that I dif-

ferentiated VA domiciliary members who failed a research appointment from those who kept appointments. Herron (1962) reported that adolescent boys "living in a residence for neglected children" scored significantly higher on I and lower on E than normal boys.³ But Signori, Smordin, Rempel and Sampson (1964) found no differences between "better adjusted" and "more poorly adjusted" institutionalized delinquent girls. No sex differences between young adult groups was found by Rankin and Johnston (1962), or between young women and those of menopausal age by Gilbert and Levee (1963).

These investigations were concerned with the construct validity of the PSC. No study of its criterion validity is known to us.

Our preliminary work suggested that sex and intelligence are factors influencing PSC performance. Dombrose and Slobin (1958) acknowledge that the IES was designed for males, but do not rule out applicability to females as well. Signori, et al. (1964), Gilbert and Levee (1963) and Rankin and Johnston (1962) all hypothesize that their negative results may reflect an invalidity which is restricted to female samples.

Interestingly enough, researchers using the IES make little or no mention of the possible effect of intelligence, despite an oblique warning by Dombrose and Slobin (1958) that "the age range of the test is limited only by the subject's ability to . . .

¹The authors are indebted to Dr. Ott B. McAttee, superintendent of Madison State Hospital, Madison, Indiana, and his staff, for their cooperation in the collection of data for this study. Statistical analysis of the data by IBM machinery was supported by a grant from the Association for the Advancement of Mental Health Research and Education, Inc.

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³Sets H and K, which are sexually suggestive, were not used in this study to avoid unfavorable parental reactions. The effect of the omission on test results is, of course, unknown.

comprehend the content of the items." In our pilot administrations, it was not uncommon for a subject to make a comment which clearly indicated a misunderstanding of PSC item content. The extent and impact on test scores of such errors are worthy of investigation.

The purpose of the present study was 1) to re-examine the ability of the PSC to discriminate psychotics and neurotics; 2) to test its criterion validity; 3) to investigate sex differences, and 4) to investigate the extent and effect of misunderstanding of item content.

SUBJECTS AND METHOD

The subjects were 131 unselected patients from the wards of a state psychiatric hospital. Of these, five obviously did not comprehend the instructions or refused to participate in some part of the testing. These were eliminated. Of the remaining 126 patients, 66 were male and 60 female. According to the diagnoses of the staff conference, 54 were psychotic, 24 were neurotic, 35 were classified as alcoholics, and there were 13 cases of brain syndromes. Forty-eight of the psychotic group were diagnosed as schizophrenic reactions including 12 chronic undifferentiated type and 12 paranoid type. There were five involuntary psychotic reactions and one manic-depressive. Half of the neurotic group was composed of personality disorders, the remainder being largely depressive reactions. Of the alcoholics, 17 also carried diagnoses of emotionally unstable personality.

The mean age for the sample was 40.8 years and the mean IQ, based on the WAIS Verbal Scale, was 93.1. A breakdown of the sample showing age and IQ according to diagnostic classification is given in Table I.

The PSC, MMPI, and the WAIS Verbal Scale were administered to each subject individually. The MMPI was not obtained for 11 subjects, largely because of lack of verbal comprehension or chronic inattention.

TABLE I—Some Characteristics of the Sample

| Group | N | Means | |
|----------------------------|------|--------|--------|
| | | Age | IQ |
| Psychotics | 54 | 39.3 | 91.0 |
| Neurotics | 24 | 35.7 | 90.3 |
| Alcoholics | 35 | 42.9 | 99.3 |
| (Neurotics and alcoholics) | (59) | (39.9) | (95.6) |
| Organics | 13 | 52.5 | 91.6 |
| Total | 126 | 40.8 | 93.1 |
| All males | 66 | 41.3 | 95.1 |
| All females | 60 | 40.6 | 91.2 |

The PSC was then presented a second time to the subject with a request to explain the meaning of each stimulus set and each choice card. If there were no errors in interpretation, nothing further was required. Whenever a subject misinterpreted any of the stimulus drawings, the correct interpretation was given by the experimenter, and the subject was then offered an opportunity to alter his original response. Misinterpretations and changes were recorded for each subject.

RESULTS⁴

The mean scores on I, E, and S are shown in Table II. *F*-ratios indicate

TABLE II—Mean PSC Scores by Diagnostic Group

| Group | N | Means | | |
|-----------------------------|------|--------|--------|--------|
| | | I | E | S |
| Psychotics | 54 | 2.59 | 6.31 | 4.11 |
| Neurotics | 24 | 2.15 | 6.92 | 3.96 |
| Alcoholics | 35 | 2.91 | 5.83 | 4.23 |
| (Neurotics and alcoholics) | (59) | (2.59) | (6.27) | (4.12) |
| Organics | 13 | 3.85 | 4.85 | 4.13 |
| Total | 126 | 2.75 | 6.14 | 4.13 |
| <i>F</i> -ratio (df 3, 122) | | 2.89* | 2.84* | 0.24 |

*Significant at the 5% level.

significant differences among the diagnostic groups on I and E. Inspection of the means suggest that this is due to the performance of the organic group. This is verified by *t*-tests be-

⁴In the interests of conciseness and clarity, a number of statistical analyses of data are summarized but not presented in this report. These include altered PSC means, and correlations among PSC and MMPI variables. They may be obtained by writing to the senior author.

tween group means. The only differences reaching the 5% level of significance are between neurotics and organics on both I and E, and between psychotics and organics on E.

While the correlations between individual PSC scores and IQ were not significant (see Table III), the data of Table I do suggest a group effect. Hence, the *F*-ratios were recomputed with IQ held constant by covariance. The results did not change.

Of the 52 coefficients among MMPI scale scores and PSC scores, only a single one reached the 5% level. The correlations among the PSC variables and age, IQ, number of misinterpretations of the stimulus cards, and number of subsequent changes, are shown in Table III. The significant correla-

TABLE III—Correlations Among PSC Variables and Other Variables

| | I | E | S |
|------------------------|-------|--------|------|
| Age | .37** | -.32** | .01 |
| IQ | -.17 | .14 | .05 |
| No. Misinterpretations | .34** | -.28** | -.07 |
| No. changes | .46** | -.40** | -.05 |

**Significant at the 1% level.

tions with age are spurious; they merely reflect the fact that the organics are considerably older as a group than other diagnostic groups.

PSC data were also analyzed in a sex by diagnosis breakdown with IQ scores held constant. In view of the fact that only two of the organics were female, the organic group was eliminated from these analyses. This was not considered to be a serious loss since our major concern was a comparison of functional psychotics and neurotics. The mean scores entering into these analyses are shown in Table IV. Neither sex nor diagnosis, nor the interaction of the two variables, yielded a significant variance, either with or without IQ held constant.

The next step was an analysis of the number of misconceptions and subsequent changes in PSC variable scores. The breakdown by diagnostic cate-

TABLE IV—Mean PSC Scores by Sex and Diagnostic Group

| Group | I | E | S |
|---------------------------------|------|------|------|
| Male psychotics | 2.56 | 6.50 | 3.94 |
| Male neurotics and alcoholics | 2.77 | 6.03 | 4.18 |
| Female psychotics | 2.61 | 6.24 | 4.18 |
| Female Neurotics and alcoholics | 2.25 | 6.75 | 4.00 |

Note: None of the nine *F*-ratios was significant.

gories is shown in Table V, and by sex and diagnostic categories in Table VI. On the average, the number of misinterpreted cards was 12.7, almost 18 per cent of the total of 71 stimulus cards. The range was 0–71, and only 20 of the 126 subjects made no misinterpretations. More than two changes per subject were made in the 13 possible responses, or just over 16 per cent. The range was 0–8 with only 31 subjects making no changes.

TABLE V—Misinterpretations and Changes by Diagnostic Group

| Group | Means | |
|---------------------------------|--------------------|---------|
| | Misinterpretations | Changes |
| Psychotics | 16.5 | 2.6 |
| Neurotics | 13.9 | 2.0 |
| Alcoholics | 5.3 | 1.2 |
| (Neurotics & alcoholics) | (8.8) | (1.5) |
| Organics | 14.5 | 2.3 |
| Total | 12.7 | 2.1 |
| <i>F</i> -ratio | 4.87** | 4.30** |
| <i>F</i> -ratio (covariate: IQ) | 2.51 | 2.57 |

**Significant at the 1% level.

TABLE VI—Misinterpretations and Changes by Sex and Diagnostic Group

| Group | Means | |
|-----------------------------------|--------------------|---------|
| | Misinterpretations | Changes |
| Male psychotics | 11.4 | 2.5 |
| Male neurotics & alcoholics | 5.5 | 1.2 |
| Female psychotics | 18.6 | 2.7 |
| Female neurotics & alcoholics | 15.3 | 2.2 |
| All males | 7.2 | 1.6 |
| All females | 17.5 | 2.5 |
| <i>F</i> -ratios: (covariate: IQ) | | |
| Sex | 8.49** | 1.59 |
| Diagnosis | 1.20 | 3.94* |
| Sex X diagnosis | 0.57 | 0.02 |

*Significant at the 5% level.

**Significant at the 1% level.

Differences among diagnostic groups for both variables are significant when the organics are considered. However, these differences must be due entirely to intelligence, since they disappear when IQ is co-varianced out (see Table V). This is not surprising since the correlation between the number of misinterpretations and IQ is $-.48$, and the correlation between misinterpretations and changes is $.81$.

In the sex by diagnosis breakdown with IQ neutralized, the sex difference is significant for misinterpretation, and differences among diagnostic categories are significant for changes. Female patients made more than twice as many misinterpretations and psychotics made more changes than non-psychotics.

All protocols were now rescored using the changed responses. We have, thus, an account of PSC scores based on verified knowledge of the subject's comprehension of the test stimuli.

Comparisons of the original and altered PSC means show that for all groups of subjects, I decreased, (0.58 on the average) and E increased (0.60 on the average). S changed only slightly and without a consistent trend (a decrease of 0.03 on the average).

The variance analyses performed on the original data arrangements in Tables II and IV were recomputed for the altered means. The results, in terms of significance and nonsignificance of F -ratios, showed no change. Comparisons among diagnostic groups on I and E (which yielded significant F -ratios) have, however, changed considerably, as indicated by the summary in Table VI. With the original scores (Table II) the significant F -ratios are due entirely to the organic group, which was higher on I and lower on E than other groups. Table VII suggests that the overall significance of altered I and E means is due to the organics and alcoholics. This is because the alcoholics manifested the smallest decrement in I scores and the smallest increment in E scores, from original to altered scores, of any

of the diagnostic groups. In consequence, alcoholics and organics do not differ, but both of these groups differ from the psychotics and neurotics, who do not differ from each other.

TABLE VII— t -Tests Among Altered Diagnostic Group Means for I and E

| Comparison | I | E |
|---------------------------|--------|--------|
| Psychotics vs. neurotics | 1.25 | 0.53 |
| Psychotics vs. alcoholics | 1.50 | 2.72** |
| Psychotics vs. organics | 2.12* | 2.81** |
| Neurotics vs. alcoholics | 2.36* | 2.70** |
| Neurotics vs. organics | 2.77** | 2.90** |
| Alcoholics vs. organics | 1.00 | 0.88 |

*Significant at the 5% level.

**Significant at the 1% level.

The altered scoring had only a slight effect on correlations (see Table VIII). Age and IQ relationships are practically unchanged. Correlations with number of misinterpretations and number of changes are decreased considerably. A total of seven of 52 relationships with the MMPI are now significant, but the largest coefficient is only $.23$, and no logical pattern emerges. Furthermore, four of the significant coefficients involve the L, K and Mf scales.

Correlations between original and altered PSC scores are substantial: $.85$ for I, $.80$ for E, and $.62$ for S. This indicates that the effect of altering scores has been fairly equivalent over the subjects.

TABLE VIII—Correlations Among PSC Variables with Altered Scoring and Other Variables

| | I | E | S |
|------------------------|-------|--------|------|
| Age | .33** | -.30** | .10 |
| IQ | -.13 | .08 | .07 |
| No. misinterpretations | .20* | -.09 | -.12 |
| No. changes | .26** | -.13 | -.11 |

*Significant at the 5% level.

**Significant at the 1% level.

DISCUSSION AND CONCLUSIONS

The PSC, in its present form, evidently lacks criterion validity as measured by the MMPI. Its construct validity with hospitalized psychiatric patients is also open to the most seri-

ous question. Clearly, it fails to distinguish among the key groups, psychotics and neurotics. It is true that it did distinguish the brain damaged patients, but this is of doubtful utility. The cases in our sample were fairly well deteriorated and easily identifiable, not the type which is usually referred to the psychologist for differential diagnosis.

The failure of the PSC to distinguish between the sexes, as well as among diagnostic groups in general, suggests that responses are determined by a general or attitudinal or other surface factor, and that the PSC does not tap the deeper-lying motivations which it was intended to measure. An instrument which is designed specifically to investigate basic personality tendencies in males *ought* to evoke different responses in females. The failure of the PSC to do so suggests that its impact is at a common, attitudinal level, perhaps colored by a social desirability factor.

The operation of a social desirability factor is suggested by the fact that I and E scores are positively correlated with number of misinterpretations of the stimulus cards. This means that a high I or low E score is due in part to faulty interpretation. A possible inference is that some patients made some I responses (which are the socially undesirable ones) rather than E responses because they failed to perceive the I responses as undesirable, due to misinterpretation of the I stimulus card, or its context. This inference is supported by the fact that the correlation of the *altered* E scores with number of misinterpretations is insignificant, and the correlation with the altered I score is barely significant. And when correct interpretation of stimuli is provided, I scores diminish and E scores increase.

It is apparent that the PSC stimuli were rather widely misinterpreted by our subjects, and that the extent of failure to perceive the test constructor's intended meaning was a function

of intelligence. Of the 71 cards in the PSC, the subjects misperceived the intended meaning on almost 13 cards on the average. About 85% of the subjects made one or more misinterpretations. These misinterpretations affected PSC scores of more than 75% of the subjects. On this basis alone, in the absence of other empirical data, the validity of the PSC would appear highly improbable. It would certainly seem that the patient or subject must be of above average, perhaps of superior, intelligence, in order to interpret the PSC cards as the test constructors intended.

Would the PSC be useful clinically if it were structured or administered so as to minimize the possibility of misinterpretation, as, for instance, by appending an explanatory caption to each stimulus card? We attempted to answer this question by correcting misinterpretations and providing an opportunity thereafter for the patient to change the choice card. Criterion validity is still negligible. The sexes remain undiscriminated, and psychotics and neurotics are not distinguished. The primary effect of the altered scoring has been to separate the alcoholics from the psychotics and neurotics and to render them indistinguishable from the organics. The reason for this peculiar phenomenon is unknown to us; certainly there is no logical reason, nor anything in the intent of the instrument, which suggests why this should have happened or what its significance may be.

Our general conclusion is that the PSC in any form lacks both construct and criterion validity with hospitalized psychiatric patients. This is as far as our data permit direct inference, but we suggest further that the instrument is probably based on a faulty set of assumptions and doubtful theoretical bases, and that it has little practical value for either research or clinical work.

REFERENCES

Bortner, R. W. Research cooperation in older

- institutionalized males. *Percept. mot. Skills*, 1963, 16, 611-612.
- Dombrose, L. A., & Slobin, M. S. The IES Test. *Percept. mot. Skills*, 1958, 8, 347-389, (Monogr. Suppl. 3).
- Gilbert, J. G., & Levec, R. F. A comparison of the personality structures of a group of young, married and a group of middle-aged, married women. *Percept. mot. Skills*, 1963, 16, 773-777.
- Herron, W. G. IES Test patterns of accepted and rejected adolescents. *Percept. mot. Skills*, 1962, 15, 435-438.
- Rankin, R. J., & Johnson, J. O. Influences of age and sex on the IES Test. *Percept. mot. Skills*, 1962, 15, 775-778.
- Signori, E. I., Smordin, M. M., Rempel, H., & Sampson, D. L. G. Comparison of impulse, ego and superego functions in better adjusted and more poorly adjusted delinquent adolescent girls. *Percept. mot. Skills*, 1964, 18, 485-488.
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Revision received October 11, 1965.

The Edwards Personal Preference Schedule in a Psychiatric Setting¹

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Summary: The EPPS was given to 107 psychiatric patients in order to confirm Klett's hypotheses and replicate previous findings with other hospitalized groups. Klett's hypotheses were partially confirmed, indicating the need for re-standardization on a psychiatric population. Differences between schizophrenic *ss* and psychoneurotic *ss* were minimal and parallel Klett's findings on the rating of social desirability. Sex differences were minimal and offer an interesting possible use of the EPPS to investigate "sex role acceptance."

The objective measurement of personality has been greatly aided by the use of questionnaires which control for social desirability. One such questionnaire which has received considerable attention over the past few years has been the Edwards Personal Preference Schedule (EPPS). Using college students as judges, items representing different psychological needs were paired on the basis of their social desirability scale values, the objective being to minimize the effect of social desirability on the probability of endorsement.

Although there is considerable interest in the personality characteristics of mental patients, the EPPS has been under-represented in the professional literature. Although it is not generally regarded as a "clinical instrument", its potential usefulness in the description of abnormal groups is apparent. In a series of studies reported by Klett & Tamkin (1957) difficulties in the application of the EPPS to psychiatric groups are discussed. Of major consideration is the possibility that differences exist in the ratings of social desirability made by college students and psychiatric patients. In answer to this question, Klett discovered six scales in which psychiatric patients differed from college students in their ratings of social desirability. In data

collected by James Milam, reported by Klett (1957), these hypotheses were generally confirmed. Newman and Wischner (1960) also reported a number of significant differences between the norms offered by Edwards (1959) and a group of 50 male hospitalized psychoneurotic veterans.

This study will attempt to verify the hypotheses developed by Klett, replicate the findings of Milam, and Newman and Wischner, and compare psychiatric patients' responses to that of the general population (Edwards 1959).

SUBJECTS AND METHOD

Subjects were selected from the continued treatment services of a 2500 bed state hospital. A total of 62 female and 45 male subjects were obtained as part of another research conducted at this hospital. A range of diagnostic entities were represented, although most subjects were diagnosed as chronic schizophrenic. Persons with either organic or alcoholic diagnoses were excluded. The EPPS was administered in small groups. Average age of the female group was 38.14 years (*sd* = 8.61) and for the male group, 36.75 years (*sd* = 8.07). Average educational attainment for female subjects was 10.95 years (*sd* = 2.27) and for males 11.09 years (*sd* = 2.52). This group thus approximates the Newman and Wischner group of psychoneurotic patients in age and education.

¹This study is based on data collected at Fairfield Hills Hospital, Newtown, Connecticut. Appreciation is expressed to Miss Ellen Sudik and the Psychology Department for their Assistance.

TABLE I—Comparison of Results with Normative Groups and Other Hospitalized Groups

| Scale | Male: Hypotheses & Previous Research ^a | | | Male: Current Findings vs. | | | Female: Current Findings vs. | | |
|-----------------|---|----------------|----------------|----------------------------|-----------|----------------|------------------------------|-----------|-----------|
| | Klett Hypotheses | Milam Findings | N & W Findings | College Norms | Gen. Pop. | N & W Findings | College Norms | Gen. Pop. | Gen. Pop. |
| Achievement | O ^b | O | L | L [*] | O | O | O | O | O |
| Deference | H | H | H | H**** | O | O | H**** | H* | H* |
| Order | H | H | H | H**** | O | O | H**** | O | O |
| Exhibition | O | L | L | L* | O | O | L**** | H* | H* |
| Autonomy | O | O | O | O | O | O | O | H* | H* |
| Affiliation | L | O | O | O | O | O | L**** | L**** | L**** |
| Intracception | L | O | O | L** | O | O | L** | O | O |
| Succorance | O | O | O | H* | H* | O | H* | O | O |
| Dominance | O | L | L | L**** | L* | O | L**** | H* | H* |
| Abasement | O | O | H | H**** | O | O | O | L* | L* |
| Nurturance | O | O | H | O | L* | L**** | H**** | O | O |
| Change | L | L | O | L** | O | L**** | L** | L* | L* |
| Endurance | O | H | H | H**** | O | O | H**** | O | O |
| Heterosexuality | O | O | L | L**** | O | H* | L**** | H* | H* |
| Aggression | H | O | O | O | L* | O | O | O | O |
| Consistency | O | O | O | O | O | O | O | O | O |

^aKlett Hypotheses compare psychiatric patients vs. college norms; Milam Findings compare "psychotics" with college norms; Newman & Wischner Findings compare "psychoneurotics" with college norms.

^bH — Hospital group significantly higher; L — Hospital group significantly lower; O — No significant difference.

*Significant at .05 level (one-tailed test); **Significant at .01 level; ***Significant at .005 level; ****Significant at .0005 level.

RESULTS

The basic findings are presented in Table I. The first three columns present the Klett hypotheses and the findings of previous research with male psychiatric patients compared to the college normative group. The next five columns indicate the results of the present research. Indicated for each scale is whether the hospital group mean was significantly higher (H) than, lower (L) than or not significantly different from (O) the means for the other groups.

For the male group, 10 out of the 16 scales were significantly different from the college standardization group, for the female group 11 out of 16 scales were significantly different. Comparing the psychiatric groups with the general population norms resulted in fewer significant differences. For male psychiatric subjects, four scales were significantly different and for female subjects, the comparison of eight scales resulted in significant differences. Comparison of the male group with the findings presented by Newman and Wischner indicated that two scales differed significantly.

Using Edwards' college group as reference, differences were computed between the male and female psychiatric patients. These findings are presented in Table II. In the college standardization group (Edwards, 1959), 12 out of the 16 scales significantly differentiated men from women. In the hospitalized group, four such differences were obtained.

DISCUSSION

It is obvious, from the great number of significant differences found between the psychiatric groups and the college standardization group, that the norms presented by Edwards (1959) are inappropriate for use in a psychiatric population. Although a greater number of differences were obtained in the present study from those obtained by Milam, (Klett, 1957) and

TABLE II—Comparison of Sex Differences in College Normative Groups and Hospitalized Patients

| Scale | Male vs. Female | |
|-----------------|-----------------|-----------------------|
| | Norms College | Hospitalized Patients |
| Achievement | H* | O |
| Deference | L | O |
| Order | O | O |
| Exhibition | O | O |
| Autonomy | H | O |
| Affiliation | L | O |
| Intracception | L | O |
| Succorance | L | O |
| Dominance | H | H* |
| Abasement | L | O |
| Nurturance | L | L**** |
| Change | L | O |
| Endurance | O | O |
| Heterosexuality | H | H* |
| Aggression | H | H* |
| Consistency | O | O |

*H—Male group significantly higher; L—Male group significantly lower; O—No significant difference.

*—Significant at the .05 level (one-tailed test); ****Significant at the .0005 level.

Newman and Wischner (1960) their findings were generally replicated and clearly point to the need for standardization on a patient population. Use of the general population norms is somewhat better for male psychiatric patients, the group with the closest fit; however, four of the scales differ significantly.

The large number of significant differences obtained between the psychiatric group and the college norms point to the possible operation of at least two factors. One hypothesis would indicate that the strength of needs measured by the EPPS scales is significantly different in the two samples. A more reasonable hypothesis, however, would be that the two groups differ in their ratings of social desirability. This hypothesis gains support when Klett's (1957) findings are considered. Of the six scales which differentiated psychiatric patients from normals in their ratings of social desirability, four were confirmed by the present investigation.

Direct comparison with the Newman and Wischner group revealed

two scales differed significantly. Klett's assertion (Klett & Lamkin 1957) that differences in pathology (psychotic — nonpsychotic) are not reflected in differing ratings of social desirability is paralleled by the finding that differences in pathology (chronic schizophrenic vs. psychoneurotic) are generally not reflected in different scale scores. Differences obtained were on the Heterosexuality and Nurturance scales. Although Newman and Wischner imply that psychiatric disturbance may have some effect in lowering the Heterosexuality scores of their sample, this is not substantiated in the present study. Although the male group scores significantly lower than the college group in heterosexuality, no demonstrable differences were obtained with the general population and the male group scored significantly higher than did the Newman and Wischner group of psychoneurotic patients.

Although it was generally true that our male sample performed closely to the female group, four scales significantly differentiated them. Newman and Wischner's finding on the Nurturance scale was not replicated. Newman and Wischner's group scored significantly higher on Nurturance than did the college group. The male group reported here did not differ from the standardization group, scored significantly lower than the general population, and significantly lower than the Newman and Wischner group of psychoneurotic males.

This study points to the need for standardization of the EPPS on a psychiatric population as well as probable re-evaluation of item matching on social desirability. An intriguing possibility is raised by the findings reported here. The general lack of differences between the male and female group may well indicate that the EPPS may be tapping a "sex role acceptance" factor. Sex role confusion, a relatively common clinical finding, may be operating to reduce sex differences. Although psychologically a more superficial concept than "needs", "sex role acceptance" might be an important variable in the adjustment of the hospitalized patient.

REFERENCES

- Edwards, A. L. *Edwards Personal Preference Schedule, Manual*. New York: Psychol. Corp., (revised) 1959.
- Klett, C. J. The social desirability stereotype in a hospital population. *J. consult. Psychol.*, 1957, 21, 419-421.
- Klett, C. J., and Tamkin, A. S. The social desirability stereotype and some measures of psychopathology. *J. consult. Psychol.*, 1957, 21, 450.
- Newman, J. and Wischner, G. J. The performance of a hospitalized neuro-psychiatric sample on the Edwards Personal Preference Schedule. *J. clin. Psychol.*, 1960, 16, 99-100.
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Revision received September 20, 1965

Personality Variables in Rorschach Scoring¹

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Summary: Twenty-three clinical trainees scored a standardized list of 150 Rorschach responses and were administered the EPPS. Ten directional hypotheses were advanced which predicted certain personality attributes of those making scoring errors in various determinant categories. Results showed significant differences between high and low error groups on scores on several EPPS scales, supporting four of the ten hypotheses. Scoring errors in the color, human movement, texture, and vista determinant categories were related to scores on the Exhibition, Affiliation, Autonomy, and Abasement scales, respectively. Implications of these results are discussed regarding the reliability of Rorschach interpretations.

Although the reliability of the Rorschach has been given considerable attention, only sparse concern has been devoted to the consistency and reliability of those who score and interpret the test. Token interest has been devoted to comparisons of independent Rorschach interpretations (Datel & Gengerelli, 1955; Hertz & Rubinstein, 1939; Krugman, 1942). In such studies, equivocal results regarding the similarity of interpretations have been attributed in part to differences in experience, training, and competence of the interpreters (Holzberg, 1961). Somewhat greater emphasis has been placed upon comparisons of independent Rorschach scoring, *i.e.*, scorer reliability (Baughman, 1951; Dana, 1955; Hertz, 1938; Lisansky, 1956; Ramzy & Pickard, 1949; Sicha & Sicha, 1936; Voigt & Dana, 1964). Such studies have suggested that scoring differences are also functions of scorer characteristics.

Interpretive differences among Rorschach analyses may be better understood if it is assumed that formal scoring plays some role in interpretation. In traditional hypothesis derivation and protocol interpretation utilizing formal scores, certain ratios and quantities of determinant scores are often used to identify certain areas of conflict or disturbance present in an

individual. In extracting such interpretive hypotheses, maximum agreement among scorers facilitates congruity of personality evaluations. On the other hand, idiosyncratic scoring differences operate to decrease agreement among interpretations.

Interpretation thus involves accurate and consistent formal scoring. Therefore, it becomes important to identify those variables which might lower scoring reliability by inhibiting accurate and consistent application of scoring criteria.

It is hypothesized that the personality of the scorer influences the "objective" process of Rorschach scoring in predictable ways. In the present study, relationships between certain measures of scorer personality and varieties of Rorschach scoring errors are examined.

METHOD

Subjects

The subjects who served as scorers were 23 advanced-degree candidates in clinical psychology. All had successfully completed the same graduate course of instruction in Rorschach administration and scoring. There were 12 males and 11 females with a mean age of 27. Mean clinical experience was one year, and ranged from zero to ten years.

Procedure

All subjects scored a series of 150 Rorschach responses for determinants

¹The author wishes to express gratitude to Dr. Marvin W. Kahn for his generous aid and editorial consultation during preparation of the manuscript.

only, using Klopfer's scoring system (Klopfer, Ainsworth, Klopfer, & Holt, 1954). Selection and description of the responses scored are described elsewhere (Voigt & Dana, 1964). The Edwards Personal Preference Schedule (Edwards, 1953) was later administered to all scorers.

Each scorer's scoring of the responses was compared with a criterion scoring of the response list, described later. Two general types of scoring errors were defined: (a) addition of determinants not present, and (b) omission of determinants which were present in the scoring criterion. Overall means for additions and omissions were 36.26 and 39.83 respectively. Preliminary analysis indicated that additions and omissions of scores in the various categories were independent of each other ($r = .13$, $p < .45$). Additions, however, correlated much higher with total scoring errors ($r = .82$, $p < .01$) than did omissions ($r = .67$, $p < .01$). Therefore, predictions were made regarding the expected personality characteristics of individuals making many addition errors (rather than omission errors) in certain scoring categories. The assumption implicit in these predictions is that those scorers who tend to overscore certain categories of Rorschach determinants possess personality characteristics or needs similar to individuals whose Rorschach records are characterized by over-production of these same determinants.

On this basis, then, ten predictions were made as to which EPPS personality variables would differentiate those scorers making many versus those making few addition errors in certain determinant categories. Interpretations of the meanings of these categories were obtained from two sources: Klopfer *et al.* (1954), and Phillips and Smith (1953). These interpretations were then related to descriptions of certain EPPS personality variables found in the EPPS Manual (Edwards, 1959). The predictions are

described below in the form of directional hypotheses.

Hypothesis 1: Scorers adding many achromatic color (C') determinants will obtain low Exhibition scores. The use of C', a toned-down response to color, contraindicates free impulse expression and unrestrained behavior (Klopfer *et al.*, 1954, p. 278; Phillips & Smith, 1953, p. 40).

Hypothesis 2: Scorers adding many chromatic color (C) determinants will obtain high Exhibition scores. The use of C indicates freedom of self-expression and emotional responsiveness (Klopfer *et al.*, 1954, p. 278; Phillips & Smith, 1953, p. 40).

Hypothesis 3: Scorers adding many human movement (M) determinants will obtain high Intraception scores. In this context, M is used as a measure of empathy and interpersonal sensitivity (Phillips & Smith, 1953, p. 69).

Hypothesis 4: Scorers adding many M determinants will obtain high Affiliation scores. In this context, M is used as a measure of empathy and tendency toward interaction with others (Phillips & Smith, 1953, pp. 56-57).

Hypothesis 5: Scorers adding many M determinants will obtain low Exhibition scores. In this context, M is used as a measure of fantasized rather than active emotional responsiveness (Klopfer *et al.*, 1954, p. 257; Phillips & Smith, 1953, p. 62).

Hypothesis 6: Scorers adding many representative distance (k) determinants will obtain high Intraception scores. The use of k indicates intellectualized anxiety and false insight (Klopfer *et al.*, 1954, p. 269).

Hypothesis 7: Scorers adding many texture (c) determinants will obtain high Succorance scores. In this context, c is used as a measure of over-dependence on affectional and nurturant responses from others (Klopfer *et al.*, 1954, p. 271).

Hypothesis 8: Scorers adding many c determinants will obtain low Auto-

onomy scores. In this context, *c* is used as a measure of acceptance of affectional needs and dependency upon the responses of others (Klopfer *et al.*, 1954, p. 271).

Hypothesis 9: Scorers adding many vista (*FK*) determinants will obtain high Abasement scores. In this context, *FK* is used as a measure of perceived inadequacy and inferiority (Phillips & Smith, 1953, p. 98).

Hypothesis 10: Scorers adding many *FK* determinants will obtain high Intraception scores. In this context, *FK* is used as a measure of insight and introspective effort (Klopfer *et al.*, 1954, p. 268; Phillips & Smith, 1953, p. 98).

The scoring criterion was derived in a fashion similar to that employed in past studies of Rorschach scoring reliability (Sicha & Sicha, 1936; Voigt & Dana, 1964). The criterion scoring for any response was that determinant or determinants assigned the response by a majority of scorers, *i.e.*, twelve or more. In the few instances where majority consensus was lacking, criterion scores were determined by an outside judge in consultation with a Rorschach expert (an ABEPP clinical Diplomate).

Scoring errors were tallied in ten Rorschach determinant categories: achromatic color (*FC'*, *C'F*, *C'*), chromatic color (*FC*, *CF*, *C*, *F/C*, *C/F*, *F*↔*C*, *C*↔*F*), human movement (*M*), animal movement (*FM*), inanimate movement (*Fm*, *mF*, *m*), form (*F*), texture (*Fc*, *cF*, *c*), diffusion (*KF*, *K*), representative distance (*Fk*, *kF*, *k*), and vista (*FK*). Reversals of form direction (*e.g.*, scoring *cF* instead of *Fc*) were not tallied as errors because greater interpretive emphasis is usually placed upon the presence or

absence of a particular category of determinant than upon the form emphasis within a category.

The number of addition errors made by each scorer in each determinant category was obtained, and upper and lower quartiles (six scorers in each) were selected on this basis. In accordance with each hypothesis, the quartile groups within each scoring category were compared, and group differences in scores obtained on the appropriate EPPS variable were tested for significance.

RESULTS

Using a one-tailed Mann-Whitney U Test, significant differences were found between high and low groups for four of the ten predicted relationships. Results for tests of all hypotheses appear in Table I.

The high *C* error group obtained higher Exhibition scores than the low *C* error group ($p < .01$). The high *M* error group obtained higher Affiliation scores than the low *M* error group ($p < .05$). The high *c* error group obtained lower Autonomy scores than the low *c* error group ($p < .05$). Finally, the high *FK* error group obtained higher Abasement scores than the low *FK* error group ($p < .01$).

Group differences predicted by the other six hypotheses were not significant, although these differences were all in the predicted direction.

DISCUSSION

From these results, it can be seen that scorers who overuse color, human movement, vista, and texture determinants appear to be more exhibitionistic (need attention), affiliative (need human relationships), abasive (need negative self-regard), and non-

TABLE I—Mann-Whitney U Values and Probabilities for the Tested Hypotheses

| Hypothesis # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------------|------|-----|-----|-----|-----|------|------|-----|-----|------|
| Mann-Whitney U Value | 16.5 | 4.5 | 16 | 7.5 | 12 | 11.5 | 12.5 | 6.5 | 4 | 12.5 |
| One-tailed $p <$ | .43 | .01 | .40 | .05 | .19 | .17 | .22 | .04 | .01 | .22 |

autonomous (need to be dependent), respectively, than those scorers who add such determinants in their Rorschach scoring with much less frequency.

The preceding results have predictably identified some specific Rorschach scoring errors which are functions of objectively determined personality characteristics of the scorer. These results reflect a specific approach designed to assess influences of scorer personality on Rorschach scoring, *viz.*, equating scorers' additions of various determinants with heightened production or overuse of these determinants by Rorschach respondents. Some evidence for the validity of this approach seems indicated by the confirmation of four hypotheses and directional accuracy of the remaining six.

Some question might be raised as to the representativeness of the scorers in the present sample in relation to the population of Rorschach scorers *in toto*. Perhaps these advanced students, having only minimal experience with the Rorschach and its scoring system, are less accurate scorers than practicing clinicians. There exists, however, no empirical evidence to support such an assumption. It might also be argued that scoring by relatively inexperienced clinical trainees is more subject to distortion and influence by personality variables than that of experienced clinicians. Again, no evidence exists which suggests that experience *per se* grants relative immunity from scoring bias.

Results of the present study suggest that personality variables may, under certain conditions, systematically influence Rorschach scoring. Certain personality characteristics of the scorer may influence his perception of the responses to be scored, and consequently inhibit the accurate application of scoring criteria. These findings emphasize the need for further investigation of possible influences of scorer

personality upon the predominantly objective process of Rorschach scoring. Indeed, if personality characteristics of the Rorschach analyst influence scoring — the most objective part of protocol analysis — then it must certainly be expected that personality influences are infinitely more pervasive at the deeper, subjective levels of interpretation. Thus, the interaction between analyst and protocol demonstrated in the present study has particular relevance because it contributes to lowered scoring reliability, and as a result undoubtedly decreases the similarity of clinical interpretations derived from Rorschach records.

REFERENCES

- Baughman, E. E. Rorschach scores as a function of examiner differences. *J. proj. Tech.*, 1951, 15, 243-249.
- Dana, R. H. Rorschach scorer reliability. *J. clin. Psychol.*, 1955, 11, 401-403.
- Datel, W. E., & Gengerelli, J. A. Reliability of Rorschach interpretations. *J. proj. Tech.*, 1955, 19, 372-381.
- Edwards, A. L. *Edwards Personal Preference Schedule*. New York: Psychol. Corp., 1953.
- Edwards, A. L. *Manual for the Edwards Personal Preference Schedule* (revised). New York: Psychol. Corp., 1959.
- Hertz, Marguerite R. Scoring the Rorschach inkblot test. *J. genet. Psychol.*, 1938, 52, 15-64.
- Hertz, Marguerite R., & Rubinstein, B. B. A comparison of three "blind" Rorschach analyses. *Amer. J. Orthopsychiat.*, 1939, 9, 295-314.
- Holzberg, J. D. Reliability re-examined. In Maria A. Rickers-Ovsiankina (Ed.), *Rorschach psychology*. New York: Wiley, 1961. Pp. 361-377.
- Klopfer, B., Ainsworth, Mary D., Klopfer, W. G., & Holt, R. R. *Developments in the Rorschach technique*. Vol. I. Yonkers-on-Hudson: World Book Co., 1954.
- Krugman, Judith E. A clinical validation of the Rorschach with problem children. *Rorschach Res. Exch.*, 1942, 6, 61-70.
- Lisansky, Edith. The inter-examiner reliability of the Rorschach test. *J. proj. Tech.*, 1956, 20, 310-317.
- Phillips, L., & Smith, J. G. *Rorschach interpretation: advanced technique*. New York: Grune & Stratton, 1953.
- Ramzy, I., & Pickard, P. M. A study in the reliability of scoring the Rorschach ink blot test. *J. gen. Psychol.*, 1949, 40, 3-10.
- Sicha, K., & Sichra, Mary. A step toward the standardization of the scoring of the Rorschach

chach test. *Rorschach Res. Exch.*, 1936, 1, 95-101.

Voigt, W. H., & Dana, R. H. Inter- and intra-scorer Rorschach reliability. *J. proj. Tech. pers. Assess.*, 1964, 28, 92-95.

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Received July 6, 1965

Personality Variables Associated with Reactions to Frustration

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Summary: The 16 Personality Factor Questionnaire (16 P. F.) and the Rosenzweig Picture-Frustration Study (Rosenzweig P-F) were administered to a group of 164 high school and college students in an effort to determine the relationship between measured personality variables and the direction of one's reactions to frustration. A number of personality variables were found to correlate with either extrapunitive, intrapunitive, or impunitive reactions to frustration. The results were interpreted as support for the combined use of projective tests and personality questionnaires in predicting reactions to frustration.

Since the publication of *Frustration and Aggression* (Dollard, Miller, Doob, Mowrer, & Sears, 1939) research has been directed towards both the sources of frustration (Allport, 1954) and aggressive reactions to it (Chasdi & Lawrence, 1955; Gatling, 1950; Hovland & Sears, 1940; Miller & Bugelski, 1948; and Rosenzweig & Rosenzweig, 1952). Rosenzweig (1938), assuming that nearly all reactions to frustration are punitive in nature, hypothesized three such reactions, referring to them as extrapunitive (E), intrapunitive (I), and impunitive (M). Other authors (Allport, 1954; Cloward & Ohlin, 1958), realizing that to understand aggressiveness requires determining the personality variables associated with its expression, have speculated that certain personality variables may be associated with these particular punitive reactions to frustration. Bennet & Jordan (1958) and Adorno, Frenkel-Brunswik, Levinson & Sanford (1950) have indicated some relationships; but to date, no one has related a number of measured personality variables to the three punitive reactions hypothesized by Rosenzweig. The study reported below is such an attempt.

METHOD

Subjects. The sample was composed of 105 females and 59 males. The mean age for the women was 18.5; for the men 18.9. Thirty-nine subjects

(Ss) were high school juniors and 126 Ss were college freshmen and sophomores enrolled in General Psychology classes.

Apparatus. The Sixteen Personality Factor Questionnaire (16 P. F.) developed by Raymond B. Cattell (1957) and the Rosenzweig Picture-Frustration Study (Rosenzweig P-F) (Rosenzweig, Fleming, & Clarke, 1947) were the two assessment techniques used.

Procedure. Both tests were administered within a regular 50 minute class period. The Rosenzweig P-F was administered first, followed by the 16 P. F. Constant time reminders were given the Ss, since-only by working steadily could the S finish both questionnaires.

Following the testing, the 16 P. F. answer sheets were scored using the stencil key provided, and raw scores on each of the bi-polar factors were recorded for each examinee. Each response on the Rosenzweig P-F was read, evaluated, and scored either extrapunitive (E), intrapunitive (I), or impunitive (M) in accordance with the interpretative suggestions included in the scoring manual (Rosenzweig, *et al.*, 1947). After the Rosenzweig P-F was scored, percentage scores (the per cent of the total responses considered E, I, or M) for each of the three response categories were recorded for each S.

Both "inter" and "intra" scorer reliability were determined first, on E over a two week time period; and sec-

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ond, between *E* and a second person trained in the use of projective techniques. Inter-scorer reliability ranged from .86 on Factor M to .98 on Factor I. Intra-scorer reliability ranged from .97 on *E* to .98 on I and M.

RESULTS

Table I presents the significant relationships found between tested personality variables and the various responses on the Rosenzweig P-F.

tor O); and tense (Factor G). Similar results are reported by Singer & Seymour (1959), who found that persons unable to control impulsiveness and impatience in relatively free and unrestrained social situations responded more extrapunitively to frustration; and by Davids (1955) who reported that anxious, depressed, and moody persons react extrapunitively to frustration. The significance of the negative correlation (-.32) between de-

TABLE I—Significant Relationships* Between Tested Personality Variables and E, I, and M Responses on the Rosenzweig P-F Study

| Factors | Direction of Reactions | | | | | |
|--|------------------------|------|------|-------|------|------|
| | Females | | | Males | | |
| | E | I | M | E | I | M |
| G (conscientious vs. undependable) | -.41 | | | | | |
| L (suspecting vs. accepting) | | -.40 | -.31 | .44 | -.41 | |
| H (adventurous vs. shy) | | | -.37 | | | |
| M (absent-minded vs. practical) | | | -.55 | | | |
| O (anxious vs. confident) | | | | .36 | | -.86 |
| Q ₂ (self-sufficient vs. dependent) | | | | -.32 | | |
| Q ₄ (tense vs. composed) | | | | .54 | -.36 | .54 |
| F (enthusiastic vs. glum) | | | | | | -.33 |

* $p < .01$

Men and women were differentiated throughout the analysis because of a previously noted sex difference in reactions to frustration (Hartup & Mimmion, 1959; Walters & Jaks, 1959). Z scores were also computed to compare the obtained means for both the 16 P. F. and the Rosenzweig P-F with the means of the standardized groups. Since all but two of the obtained scores were below 1.9, the present sample is quite representative of the larger population upon which the norms were based.

DISCUSSION

One of the most significant findings was the considerably higher proportion of extrapunitive responses emitted by males than females. Among the females, the only significant relationship uncovered was the negative correlation (-.41) between Factor G (undependable) and extrapunitive. Among the male Ss, extrapunitiveness was found to be positively related to suspecting-jealous (Factor L); anxious, depressed, insecure, and moody (Fac-

tor O) and extrapunitiveness is not presently understood.

As with extrapunitiveness, intrapunitiveness was significantly associated with a number of personality variables. For both sexes, the significant negative correlations (-.40 and -.41) between intrapunitiveness and Factor L suggest that a person who is adaptable, cheerful, and composed will react intrapunitively to frustration. Similarly, among the male Ss the negative correlation (-.36) between Factor Q₄ and intrapunitiveness suggests that a stable and relaxed person reacts more intrapunitively to frustration than the tense, excitable and restless person. Even though traditionally self blame has not been considered a healthy reaction, the personality variables associated with it in the present study suggest that intrapunitiveness may well be a healthier reaction to frustration than once thought.

Similar to both extrapunitiveness and intrapunitiveness, impunitiveness was associated with a number of per-

sonality variables. Among the female Ss, the $-.37$ correlation between caution and constrictedness (Factor H) and impunitive combined with the almost zero correlation between Factor H and extrapunitive ($-.07$) and Factor H and intrapunitive ($-.01$) suggest that timid, cautious, and shy females react impunitively to frustration. Similar results are reported by Rosenzweig (1944) and Dollard, *et al.* (1939). Among the male Ss, two results are noteworthy. First, the $-.86$ correlation between Factor O and impunitive indicates that self confident males are more apt to react impunitively to frustration than males who are insecure and suspicious. Second, the $.33$ correlation between Factor F and impunitive suggests that males who are taciturn, reticent, and introspective also react more impunitively to frustration than those who are more cheerful, talkative, and frank. Such impunitive reactions are consistent with data reported by Bennett & Jordan (1958), Dollard, *et al.* (1939) and Rosenzweig (1938).

The numerous correlations significant at the $.01$ confidence level strongly suggests that there is a definite relationship between measured personality variables and the direction in which one expresses the consequent aggression. The apparent internal consistency of the instruments used, combined with the many significant correlations obtained suggest that not only are the instruments employed in the above study a beginning to a predictive investigation of personality variables and reactions to frustration, but also that there is promise of finding trait-measures of personality which can predict various reactions to frustration.

REFERENCES

- Adorno, T. W., Frenkel-Brunswick, E., Levinson, D. J., & Sanford, R. N. *The authoritarian personality*. New York: Harper & Brothers, 1950.
- Allport, G. W. *The nature of prejudice*. Boston: The Beacon Press, 1954.
- Bennett, C. M., & Jordan, T. E. Security-insecurity and the direction of aggressive responses to frustration. *J. clin. Psychol.*, 1958, 14, 166-167.
- Cattell, R. B., & Saunderson, D. R. *Handbook for the 16 Personality Factor Questionnaire*. Champaign: Inst. for Personality & Ability Testing, 1957.
- Chasdi, E. H., & Lawrence, M. S. Some antecedents of aggression and effects of frustration in doll play. In D. McClelland (Ed.), *Studies in motivation*. New York: Appleton-Century-Croft, 1955.
- Cloward, R. A., & Ohlin, L. E. *Delinquency and opportunity: a theory of delinquent gang*. Glencoe: The Free Press, 1960.
- David, A. Some personality and intellectual correlates of intolerance of ambiguity. *J. abnorm. soc. Psychol.*, 1955, 51, 415-419.
- Dollard, J., Miller, N. E., Doob, L. W., Mowrer, O. H., & Sears, R. L. *Frustration and aggression*. New Haven: Yale Univ. Press, 1939.
- Gatling, F. P. Frustration reactions of delinquents using Rosenzweig's classification system. *J. abnorm. soc. Psychol.*, 1950, 45, 749-752.
- Hartup, W., & Mimeon, Y. Social isolation vs. interaction with adults in relation to aggression in preschool children. *J. abnorm. soc. Psychol.*, 1959, 59, 17-22.
- Hovland, C., & Sears, R. R. Minor studies of aggression: VI. Correlation of lynchings with economic indices. *J. Psychol.*, 1940, 9, 401-410.
- Miller, N. E., & Bugelski, R. Minor studies of aggression: II. The influence of frustration imposed by the in-group on attitudes expressed toward out-groups. *J. Psychol.*, 1948, 18, 437-442.
- Rosenzweig, S. The experimental measurement of types of reactions to frustration. In H. A. Murry (Ed.), *Exploration in personality*. New York: Oxford Univ. Press, 1938. Pp. 585-599.
- Rosenzweig, S., Fleming, E. E., & Clarke, H. J. Revised scoring manual for the Rosenzweig Picture-Frustration Study. *J. Psychol.*, 1947, 24, 165-208.
- Rosenzweig, S., & Rosenzweig, L. Aggression in problem children and normals as evaluated by the Rosenzweig Picture-Frustration Study. *J. abnorm. soc. Psychol.*, 1952, 47, 683-689.
- Singer, R. D., & Seymour, F. Some relationships between manifest anxiety, authoritarian tendencies, and modes of reaction to frustration. *J. abnorm. soc. Psychol.*, 1959, 59, 404-408.
- Walters, R. H., & Jaks, M. S. Validation studies of an aggression scale. *J. Psychol.*, 1959, 47, 209-218.
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Received August 16, 1965.

Revision received October 9, 1965.

A Comparison of Responses by Clinic and Normal Adults to Rorschach Card III Human Figure Area

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Summary: This study is an attempt to determine the meaningfulness of utilizing the human figure areas of Rorschach card III as an index of sexual identification. The results revealed that for a female to see a male or no human at all is almost pathognomonic of emotional disturbance. For males the results are not as clear except that there is a tendency for normal males to report seeing more females than males. It is concluded that the validity of card III as an index of sexual identification is still not clearly established.

Responses to the human figure area of Card III on the Rorschach have frequently been interpreted as being related to sexual identification (Charney, 1959; Lindner, 1947; Wheeler, 1949). Nelson, Wolfson & LoCascio (1959) have cast some doubt upon this assumption. They found that the human figure areas of Card III tend to elicit more responses of male than female irrespective of the sex of the subject doing the responding.

This study is a further attempt to determine the meaningfulness of using Rorschach card III as an index of sexual identification.

METHOD

From the files of the Eastern Maine Guidance Center of the past seven years all the protocols of the adult

were inspected to determine if their response to the human figure area of Rorschach card III was reported as being male or female. Number of Ss used were 91 (36 males and 55 females).

The responses to Rorschach card III were also obtained from a group of 95 (48 males and 47 females) non-clinic persons. These persons consisted of about 80% college students and 20% adult persons from the community. This group was labeled the normal group.

Significant differences within and between the groups were tested by the use of Chi Square.

RESULTS

The essential results are depicted in Table I and Table II.

TABLE I—Responses to Human Figure Area of Rorschach Card III Designated Male, Female, Both M & F or No Human

| | Male | | Female | | Both M and F | | No Human Seen | | Total N |
|------------------|------|----|--------|----|--------------|----|---------------|----|---------|
| | N | % | N | % | N | % | N | % | |
| Male (pts) | 11 | 30 | 11 | 30 | 3 | 10 | 11 | 30 | 36 |
| Female (pts) | 22 | 40 | 4 | 7 | 6 | 11 | 23 | 42 | 55 |
| Totals | 33 | 36 | 15 | 17 | 9 | 10 | 34 | 37 | 91 |
| Male (normals) | 8 | 17 | 25 | 52 | 2 | 4 | 13 | 27 | 48 |
| Female (normals) | 11 | 23 | 22 | 47 | 3 | 7 | 11 | 23 | 47 |
| Totals | 19 | 20 | 47 | 50 | 5 | 5 | 24 | 25 | 95 |
| Grand Total | 52 | 28 | 62 | 33 | 14 | 8 | 58 | 31 | 186 |

males and females (age 16 and older and almost exclusively non-Psychotic)

¹A more detailed report of this study in mimeographed form may be obtained from the author free of charge.

DISCUSSION AND CONCLUSIONS

The results clearly indicate that the Nelson et al (1959) finding that card III of the Rorschach tends to elicit more responses of male than female is

TABLE II—Chi Square Analysis of Male-Female Responses Showing the Significance of Distribution Within Each Group and Differences Between Groups.

| | No. of Males Seen | No. of Females Seen | More Males than Females | More Females than Males | No Humans Seen |
|------------------------|-------------------------|---------------------------|----------------------------------|----------------------------------|----------------------|
| M (pts) | — | — | — | — | — |
| F (pts) | — | — | 12.46*** | — | — |
| M (normals) | — | — | — | 7.77** | — |
| F (normals) | — | — | — | 3.04 | — |
| M and F (pts) | — | — | 6.76** | — | — |
| M and F (normals) | — | — | — | 11.88*** | — |
| M and F (pts) vs | | | | | |
| M and F (normals) | 6.89** | 21.78*** | — | — | 3.61 |
| M (pts) vs F (pts) | .78 | 8.29** | — | — | .78 |
| M (normals) vs | | | | | |
| F (normals) | — | — | — | — | — |
| M (pts) vs M (normals) | 2.56 | 4.96* | — | — | — |
| F (pts) vs F (normals) | 2.91 | 20.77*** | — | — | 4.44* |
| F (pts) vs M (normals) | — | — | — | — | 4.24* |

* significance $< .05$ ** significance $< .01$ *** significance $< .001$

— denotes non-significant differences by observation or a non-meaningful comparison.

not, for the most part, upheld in this study. The results strongly suggest that when a female reports seeing males or no humans at all on Rorschach card III, the likelihood is great that she is suffering from some form of emotional disturbance. No definitive conclusions in regard to a problem in sexual identification can be drawn from the way males responded to card III except to say that it appears to be the norm for non-clinic males to see females on this card. This would make suspect the assumption that card III is an index of sexual identification for males unless the reader is prepared to say that most males, especially college students, tend to be femininely identified. Further research is necessary to

account for these differences.

REFERENCES

- Charney, I. A normative study of Rorschach sex populars for males. *J. Proj. Tech.*, Vol. 23, 1, 1959, 12-23.
- Lindner, R. M. Analysis of Rorschach test by content. *J. Clin. Psychopathol.*, 1947, 8, 707-719.
- Nelson, M., Wolfson, W., & LoCascio, R. Sexual identification in responses to Rorschach card III. *J. Proj. Tech.*, Vol 23, 3, 1959, 354-356.
- Wheeler, W. M. An analysis of Rorschach indices of male homosexuality. *J. Proj. Tech.*, 1949, 13, 97-126.

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Received June 24, 1965
Revision received July 26, 1965

An MMPI Comparison of Two Groups of Institutionalized Delinquents¹

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Summary: Two independent studies compared the MMPI performance of 2 groups of matched institutionalized delinquent boys, those who caused trouble in dormitories (SSs) and those who did not (GGs). In the 1st study, Scale 4 was the only statistically significant scale. Cross-validation found no scales statistically significant. Nineteen items which discriminated between SSs and GGs in the 1st study did not hold up in the cross-validation study. It is concluded that the MMPI has questionable value in discriminating between different levels and types of delinquents.

This study attempts to compare two groups of boys already adjudged to be delinquent. The first group consists of inmates whose behavior within a correctional school setting runs counter to the rules and regulations of the school and dormitory. In the vernacular of the particular institution used for this study, these boys are known as "Shit Sticks" (SSs). The second group is referred to by the staff and students as "Good Guys" (GGs) and their behavior is generally considered to be the opposite of SSs (i.e., they generally conform to the rules and regulations of the school and dormitory).

Most research in the field of delinquency has attempted to compare delinquents with non-delinquents. MMPI studies of this type are quite common (e.g., Briggs, Wirt & Johnson, 1961; Hathaway & Monachesi, 1952, 1953, 1958; Monachesi, 1950a; Wirt & Briggs, 1954). As a whole, these studies indicate that Scale 4 (Psychopathic Deviate), Scale 8 (Schizophrenia) and Scale 9 (Manic) differentiate between these two groups with delinquents scoring higher on each of the respective scales.

Previous MMPI research dealing with different levels of delinquency

and criminals, based on their adjustment and crimes, present either conflicting evidence or conclude that differentiation is not possible (e.g., Driscoll, 1952; Hathaway & Monachesi, 1951, 1952; Monachesi, 1950b; Panton, 1958). Despite these findings, a recently completed study by the present authors (in press), using the same groups used in this study, did find reliable cross-validated differences between SSs and GGs using the Porteus Maze Test. Since the two groups do differ on a measure of "impulse control," it is hypothesized that Scales 4, 8 and 9 of the MMPI will discriminate between SSs and GGs, with SSs scoring higher on each of these respective scales.

METHOD

Two separate studies were conducted, both essentially the same in terms of method and analysis. Standard instructions, administration and scoring were used for the MMPI booklet form (Hathaway & McKinley, 1951).

The Senior Supervisors of the dormitories in a state school for delinquent boys were consulted in order to determine the characteristics of boys which they considered to give them trouble (SSs) and those which did not (GGs). These characteristics were then summarized and presented to them and each was asked to list from six to twelve boys in their dormitory who met the characteristics for GGs (e.g., "causes no trouble," "quiet," "obeys

¹This study is based, in part, on a thesis submitted by the senior author to New Mexico Highlands University in partial fulfillment of the requirements for the degree of Master of Science. The authors wish to extend their thanks to the staff of the New Mexico Boys' School for their cooperation in this study.

rules and regulations," etc.) and an additional list of six to twelve boys who met the characteristics for SSs (e.g., "fighting," "mouthing-off," "manipulating," "general nuisance," etc.). Each boy who was listed had his name placed on an index card and these cards were presented to judges. The judges were other staff members at the school working as supervisory and psychological coordinators. These jobs put them in a favorable position to know most of the boys in the school.

The same lists of characteristics that the Senior Supervisors used were presented to each judge. The judge was asked to sort the cards into two piles, GGs and SSs. Because many of the judges saw these boys in different situations, some disagreement was expected. It was decided that a "two-to-one" ratio of agreement with the Senior Supervisor would qualify a boy for the final matching, i.e., at least two judges would have to vote the same way as the Senior Supervisor for every judge who did not, before a boy could be assigned to one of the two groups for matching.

From the boys meeting these criteria, pairs were matched individually by age, within at least six months; I.Q., as measured by the California Short Form Test of Mental Maturity, within at least five points; and by ethnic origin.

In the first study, ten matched pairs of boys were used; eight Spanish-American pairs and two Anglo-American pairs. The mean age for SSs was 16.5 (S.D.=1.37) and the mean I.Q. was 88.2 (S.D.=12.51). For the GGs, the comparable means were 16.6 (S.D.=1.19) and 88.5 (S.D.=9.65) respectively.

The replication study, conducted approximately twelve months later, compared two matched groups of thirteen boys each. The mean age for SSs was 17.0 (S.D.=.97) and the mean I.Q. was 86.8 (S.D.=10.20). The comparable means for the GGs were 17.5

(S.D.=.94) and 86.9 (S.D.=10.06) respectively. Of these pairs there were two Anglo-Americans, nine Spanish-Americans, one Navajo Indian, and one Negro. No MMPI profiles were included in either study in which the items were answered randomly or according to any extreme response set (i.e., mostly "true" or mostly "false").

RESULTS

Groups were compared using t-tests for matched groups (McNemar, 1962). The results of the first study are shown in Table I and the results of the replication study are shown in Table II.

In the first study, while the results were in the predicted direction, only Scale 4 showed a statistically significant difference at the .005 level of confidence. In the replication study no scales were statistically significant.

All items of the MMPI in the first study were tested by means of Fisher's Exact Test of probability to determine which ones discriminated between the SSs and GGs. Of the 566 items, only 19 of these reached statistical significance (at the .05 level of confidence). None of these items discriminated between the two groups in the cross-validation study.

DISCUSSION

This study reporting negative results with relatively small N's would be of little value were it not for three factors: first, a previous study (Erikson & Roberts, in press), using the same S's as those used in the present study, clearly demonstrated that SSs and GGs do differ on an independent measure of "impulse control." Secondly, the present study includes a meaningful replication which demonstrates the inability of the MMPI to discriminate between the two groups. Thirdly, the magnitude of the mean differences between groups is so small that it is unlikely that increasing the N within practical limits would show any useful differences between the

TABLE I—Raw Score MMPI Comparisons of SSs and GGs (First Study)

| Scale | SS (N=10) | | GG (N=10) | | t |
|--------|-----------|------|-----------|------|---------|
| | M | SD | M | SD | |
| P | 3.0 | 2.62 | 4.4 | 7.73 | 0.738 |
| L | 4.3 | 2.00 | 4.4 | 2.59 | 0.142 |
| F | 10.5 | 6.52 | 10.7 | 7.87 | 0.069 |
| K | 12.1 | 2.93 | 11.3 | 5.74 | 0.497 |
| 1 - Hs | 14.7 | 5.85 | 15.2 | 5.81 | 0.192 |
| 2 - D | 23.7 | 6.02 | 20.9 | 5.97 | 1.321 |
| 3 - Hy | 21.7 | 8.41 | 21.0 | 5.93 | 0.239 |
| 4 - Pd | 28.6 | 2.12 | 23.8 | 4.41 | 3.495** |
| 5 - Mf | 22.1 | 4.39 | 21.1 | 2.92 | 0.638 |
| 6 - Pa | 13.5 | 4.88 | 13.3 | 3.86 | 0.148 |
| 7 - Pt | 33.9 | 6.33 | 31.1 | 4.75 | 1.205 |
| 8 - Sc | 36.0 | 9.82 | 35.1 | 9.88 | 0.402 |
| 9 - Ma | 22.8 | 4.88 | 22.5 | 5.46 | 0.315 |
| 0 - Si | 32.6 | 8.13 | 28.6 | 9.34 | 0.999 |
| Es | 41.1 | 6.06 | 38.7 | 8.15 | 1.111 |

**Significant at the .005 level (one-tailed test).

TABLE II—Raw Score MMPI Comparisons of SSs and GGs (Replication Study)

| Scale | SS (N=13) | | GG (N=13) | | t |
|--------|-----------|------|-----------|------|-------|
| | M | SD | M | SD | |
| P | 1.6 | 5.03 | 2.1 | 5.82 | 0.129 |
| L | 3.9 | 2.59 | 4.5 | 2.53 | 0.072 |
| F | 12.4 | 6.02 | 8.9 | 4.76 | 0.749 |
| K | 12.2 | 4.43 | 14.4 | 4.78 | 0.478 |
| 1 - Hs | 16.5 | 6.20 | 15.9 | 5.95 | 0.167 |
| 2 - D | 21.5 | 4.03 | 20.2 | 5.45 | 0.314 |
| 3 - Hy | 22.8 | 6.03 | 20.1 | 5.86 | 1.046 |
| 4 - Pd | 27.6 | 4.03 | 27.4 | 5.61 | 0.057 |
| 5 - Mf | 24.7 | 3.74 | 21.3 | 3.66 | 0.850 |
| 6 - Pa | 13.5 | 3.67 | 10.7 | 3.75 | 0.469 |
| 7 - Pt | 32.7 | 3.73 | 31.3 | 4.78 | 0.267 |
| 8 - Sc | 36.5 | 8.79 | 33.5 | 7.97 | 0.536 |
| 9 - Ma | 23.5 | 5.57 | 22.7 | 3.53 | 0.134 |
| 0 - Si | 29.6 | 6.02 | 28.0 | 5.37 | 0.286 |
| Es | 38.4 | 6.06 | 41.8 | 4.32 | 0.960 |

two groups even if statistical significance could be demonstrated.

On the basis of the results of this study and the results of previous studies in this general area, it is concluded that the MMPI has questionable value in discriminating between different levels and types of delinquents. On the other hand, it seems to have been consistently successful in the differentiating between delinquents and non-delinquents. Possibly, the differences among delinquent groups is not large enough to be measured by the MMPI.

A further explanation may be that the MMPI was not a suitable test to employ in this situation. From work done by the present authors in a previous study (in press), it was con-

cluded that SSs and GGs differed in level of "impulse control." It seems possible that the kinds of "impulse control" problems which the MMPI is thought to tap, at least in Scales 4, 8 and 9, are different in a construct sense from those which are tapped by the Porteus Maze test.

Alternatively, most of the Ss in this study are bi-lingual and many are educationally retarded. Perhaps the MMPI, with its verbal format, obscures differences in "impulse control" which are clearly shown by the non-verbal Porteus Maze test.

REFERENCES

- Briggs, P. F., Wirt, R. D. & Johnson, Rochelle.
An application of prediction tables to the study of delinquency. *J. consult. Psychol.*, 1961, 25, 46-50.

- Driscoll, P. J. Factors related to the institutional adjustment of prison inmates. *J. abnormal. soc. Psychol.*, 1952, 47, 593-596.
- Erikson, R. V. & Roberts, A. H. A comparison of two groups of institutionalized delinquents on Porteus Maze Test performance. *J. consult. Psychol.*, in press.
- Hathaway, S. R. & McKinley, J. C. *MMPI Manual*. New York: The Psychological Corporation, 1951.
- Hathaway, S. R. & Monachesi, E. D. The prediction of juvenile delinquency using the MMPI. *Amer. J. Psychiat.*, 1951, 108, 469-473.
- Hathaway, S. R. & Monachesi, E. D. The MMPI in the study of juvenile delinquents. *Amer. soc. Rev.*, 1952, 17, 704-710.
- Hathaway, S. R. & Monachesi, E. D. *Analyzing and predicting juvenile delinquency with the MMPI*. Minneapolis: Univ. of Minnesota Press, 1953.
- Hathaway, S. R. & Monachesi, E. D. MMPI studies of ninth-grade students in Minnesota schools. Unpublished materials, 1958.
- McNemar, Q. *Psychological Statistics*. New York: John Wiley & Sons, Inc., 1962.
- Monachesi, E. D. Personality characteristics and socioeconomic status of delinquents and non-delinquents. *J. of Crim. Law and Criminol.*, Jan. Feb., 1950a, 40, 570-583.
- Monachesi, E. D. Personality characteristics of institutionalized and non-institutionalized male delinquents. *J. of Crim. Law and Criminol.*, July-Aug., 1950b, 41, 167-179.
- Panton, J. H. MMPI profile configurations among crime classification groups. *J. clin. Psychol.*, 1958, 14, 305-308.
- Wirt, R. D. & Briggs, P. F. Personality and environmental factors in the development of delinquency. *Psychol. Monogr.*, 1959, 73, No. 15, (Whole No. 485).
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Smoking and the Blacky Orality Factors¹

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Summary: A group of male college students was compared on six orality factors of the Blacky Pictures. Heavy smokers were found to score significantly higher on "oral craving" and to exhibit more defensiveness in a situation involving hostility toward the mother, as compared with nonsmokers. The results confirm the psychoanalytic hypothesis of a relationship between orality and smoking.

Despite overwhelming evidence that cigarette smoking increases the probability of lung cancer and other diseases, a great percentage of Americans continue to smoke. Even smokers who would like to stop often find themselves unable to do so. The general ineffectiveness of logical arguments suggests underlying psychological dynamics of considerable importance.

Within psychoanalytic theory, the conceptual link between smoking and orality is well-known. Empirically, McArthur, Waldon, and Dickinson (1958) have shown that when smokers attempted to quit, they typically substituted other oral behaviors such as chewing gum and eating candy. The ability to quit was found to vary directly with the number of months smokers were breast fed, and thumb-sucking during childhood was more commonly reported for men who continue to smoke.

While orality is probably not the only determinant of smoking, it clearly appears prominent in the etiology of the heavier smokers. Light smokers are bound more by social norms than by intrapersonal needs (McArthur et al., 1958).

This study explores the differences in orality between heavy smokers and nonsmokers.

METHOD

Subjects were 22 male students at the University of Michigan. Of these, 15 had never smoked cigarettes (nonsmokers) and 7 smoked an average of 20 or more per day (heavy smokers). Light smokers and smokers who had quit were eliminated.

The measure of orality used was the Blacky Test (Blum, 1950). Our interest centered on the first two cartoons (Oral Eroticism, Oral Sadism), from which six factor scores relating to orality can be derived (Blum, 1962). The Blacky Pictures were presented on slides in group sessions. A code number was assigned to each set of written responses in order to assure anonymity to the Ss.

RESULTS AND DISCUSSION

The results are shown in Table I. Heavy smokers scored significantly higher on "oral craving" (IA) and on "playfulness" (IIA). The former, of course, is the factor most directly related to the oral erotic desires ascribed to smokers in theory. As Blum states, "... a hypothetical person scoring high on this factor would be expected to possess an intense, almost voracious craving for oral supplies, in the psychoanalytic sense of the term." (Blum, 1962, p. 6.)

The second distinguishing factor, "playfulness," is interpreted as a defensive reaction which "serves to avoid expression of hostility toward the mother by structuring the picture in an innocuous fashion." (Blum, 1962, p. 8.) Blum (1962) has found this factor to be related to a general use of

¹Appreciation is extended to Miss Carol Williams who aided in data collection and analysis and to Dr. G. S. Blum for the use of Blacky slides and accompanying instructions.

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TABLE I—Differences between Nonsmokers and Heavy Smokers on Blacky Orality Scores

| Blacky Factor | Nonsmokers (N=15) | | Heavy Smokers (N=7) | | t |
|--|-------------------|----------------|---------------------|----------------|--------|
| | X | s ² | X | s ² | |
| IA (oral craving) | 0.87 | 1.12 | 2.71 | 1.24 | 3.75** |
| IB (oral rejection) | 0.80 | 0.89 | 1.43 | 1.95 | 1.25 |
| IC (sugar-coating) | 2.00 | 1.14 | 2.57 | 1.29 | 1.14 |
| IIA (playfulness) | 2.13 | 1.98 | 3.29 | 0.90 | 1.96* |
| IIB (supply-seeking) | 1.40 | 1.40 | 1.14 | 0.48 | 0.53 |
| IIC (resentment over oral deprivation) | 0.27 | 0.35 | 0.29 | 0.24 | 0.07 |

*Significant at .05 level

**Significant at .01 level

avoidance as a defense mechanism.

Thus, the overall picture of the heavy smoker, as drawn by Blacky Test responses, is of an individual with relatively intense oral desires who tends to avoid overt exhibition of animosity in interpersonal relations, perhaps to avoid offending a possible source of oral supplies. Such a picture is clearly consonant with psychoanalytic theory and therefore constitutes a small increment in the empirical validity of both the theory and, simultaneously, the orality factors of the Blacky Test.

REFERENCES

- Blum, G. S. *The Blacky Pictures: a technique for the exploration of personality dynamics*. New York: The Psychological Corporation, 1950.
- Blum, G. S. A guide for research use of the Blacky Pictures. *J. proj. Tech.*, 1962, 26, 3-29.
- McArthur, C., Waldon, Ellen, & Dickinson, J. The psychology of smoking. *J. abnorm. soc. Psychol.*, 1958, 56, 267-275.

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Received July 30, 1965

The Effect of First Person and Third Person Instructions and Stems on Sentence Completion Responses

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Summary: First person and third person instructions and stems were varied separately to produce four Rotter ISB sentence completion forms. Ss were 72 male and 72 female psychiatric in-patients. Both types of instructions and of stems were equally effective in eliciting dependency, anxiety and hostility responses as scored by the objective Renner, Maher and Campbell (1962) manual. This implies that the proliferation of sentence completion forms is not a productive approach. Secondarily, males produced more anxiety and less dependency responses than females.

The rationale for the projective approach to personality assessment usually emphasizes the value of an unstructured stimulus or indirect approach in order to allow the patient sufficient latitude and freedom to project his needs into the situation. However, one projective technique, the sentence completion test, often employs direct instructions and first person stems (e.g. the Rotter Incomplete Sentences Blank; ISB; Rotter and Rafferty, 1950) in seeming contradiction to the projective hypothesis (Frank, 1939). Previous research approaches (Arnold and Walter, 1957; Cromwell and Lundy, 1954; Sacks, 1949) to the problems of differential effects of instruction and stem forms have been few, have produced contradictory results and have had a number of methodological problems.

In a comprehensive review of sentence completion methods, Goldberg (1965) has reached the following conclusions about the current state of research concerning the effects of instructions and of stems:

The paucity of research findings relevant to the effects of different types of instructions on sentence completions encourages the continuation of this often gratuitous variation (p. 17).

In summary, there is considerable variability in the treatment of the stem relative to the person of reference. This variability seems to be related to theoretical assump-

tions that are largely untested, unstated, or both. What empirical evidence there is does seem to favor the first person construction of sentence stems. The evidence is, however, far from being definitive (p. 23).

More systematic investigations of the interaction effects of variations in instructions, set effects, stem structure, stem reference, and test length across populations should prove to be a valuable research contribution (p. 40).

Clinical research in general often suffers from a tendency to have each study performed independently of all previous work, reducing the possibility of building a well integrated body of knowledge. In the interests of inter-research comparability, the most frequently researched sentence completion form, the ISB, was studied. Scoring was also by means of a previously used and promising technique, an objective scoring system developed by Renner, Maher and Campbell (1962) for the areas of dependency, anxiety and hostility. In the hope of attaining some ecological validity, a clinical population was sampled to provide the subjects (Ss).

The specific focus of this study was the differential effects of employing first person and third person instructions and stems, varied separately to produce four test forms, on the responses of male and female psychiatric in-patients as scored by an objective scoring system.

METHOD

Subjects: The final sample employed consisted of 72 male and 72 female

¹The authors would like to express their appreciation to Leon Goldberg for his help in arranging for test administration.

patients of mixed diagnosis drawn from comparable male and female wards at Creedmoor State Hospital. Patients who were unwilling or unable to complete the test forms (more than five omissions) were eliminated. Testing was then done in large groups.

Procedure: Two alternate forms of the ISB were employed. Form S1 consisted of the 22 items from the ISB which contained a first-person pronoun in the stem, with the 18 items without a pronoun (e.g. The future . . .) omitted. Form S3 was a modification of this basic form, with each first-person pronoun changed to a corresponding third-person pronoun (e.g. I regret . . . became He regrets . . . on the male form and She regrets . . . on the female form).

Two different instructions were also employed. Instruction II was the standard self-reference instruction employed with the ISB, and asked the S to express his own "real feelings". Instruction I asked the S to express "the real feelings of the average person of your sex and age".

The two instructions and two stem forms were varied together to produce four basic test forms (six in all, since S3 differed for males and females). These were then reproduced so as to be identical, save for the experimental differences noted above.

Test forms were administered to groups of volunteers in the day rooms of their wards. They were arranged so as to insure that the different forms were equally distributed on each ward, but other than this precaution there was no selection of any particular form for any patient. Patients were asked to write their name on the form, but were told that the results would not be shown to their doctor. They were given approximately 30 minutes to complete the task.

The protocols were then combined and the responses to each item were typed on a separate sheet of paper, with responses to form S3 modified to a first-person form (e.g. "He

. . . wants to go home" was recorded as "want to go home"). This insured that during scoring the scorer would not be aware of the test form employed or the sex of the S. The use of separate pages for recording responses insured that each of an S's responses would be scored independently. Scoring was on a 0, 1, 2 scale of intensity, using the Renner, Maher and Campbell scoring by example manual, and assigning separate scores for dependency, anxiety and hostility. Interjudge reliability was assessed by having the authors independently score 154 responses in common, with each S contributing one response, and each stem seven responses, to the pool. Agreement between the scorers was 82%. Differences were discussed and resolved, and then a second pool of 154 responses was scored. Agreement reached 95%, and so each author then separately scored half the remaining items. After the scoring was completed, each S received three scores, representing the sum of his 22 scores in each of the content categories.

RESULTS AND DISCUSSION

A three dimensional analysis of variance (Instructions X Stem X Sex) was utilized to analyze the data. Separate analyses were performed for dependency, anxiety and hostility scores. Results of these analyses are summarized in Table I. No significant effects were obtained in analyzing hostility scores. The only significant main effect with dependency and anxiety scores was one of Sex, with males producing more anxiety responses and females more dependency responses. The triple interaction with dependency scores was due to females producing more responses in the IIS1 and I3S3 conditions than they did in the I3S1 condition, while males showed no differences among the four forms.

Aside from the secondary substantive finding that the ISB was more effective in eliciting dependency responses from females and anxiety responses from males, the major meth-

TABLE I—Analysis of Variance for Dependency, Anxiety and Hostility Scores as Related to Instructions, Stem and Sex

| Source | df | Dependency | | Anxiety | | Hostility | |
|------------|-----|------------|---------|---------|-------|-----------|------|
| | | ms | F | ms | F | ms | F |
| A (instr.) | 1 | 14.00 | 1.44 | 1.36 | — | 7.11 | 1.51 |
| B (stem) | 1 | 36.03 | 3.70 | .25 | — | .00 | — |
| C (sex) | 1 | 180.25 | 18.52** | 58.78 | 4.59* | .00 | — |
| AB | 1 | 14.25 | 1.46 | 4.00 | — | .03 | — |
| AC | 1 | 3.36 | — | 3.36 | — | .25 | — |
| BC | 1 | 18.00 | 1.85 | .69 | — | .67 | — |
| ABC | 1 | 89.44 | 9.19** | 44.45 | 3.47 | .45 | — |
| W | 136 | 9.73 | | 12.79 | | 4.70 | |
| Total | 143 | | | | | | |

* $p < .05$ ** $p < .01$

odological focus showed no consistent differences in efficacy among the various forms employed. Of course, efficacy refers to quantity in this context, as none of the responses were validated; but previous work with the ISB suggests that these responses are valid indicants (e.g. Rotter and Willerman, 1947).

If it is true that person reference, both in instructions and stems, is not related to response productivity, then variations along these dimensions are gratuitous. The implication of this finding, if it can be appropriately extended, is that the profusion of sentence completion forms utilizing a multiplicity of combinations of instructions and stems serves to reduce our ability to utilize the research literature, with little likelihood that a dramatic breakthrough in efficacy will be achieved.

REFERENCES

- Arnold, F. C., & Walter, V. A. The relationship between a self- and other-reference sentence completion test. *Journal of counseling Psychology*, 1957, 4, 65-70.
- Cromwell, R. L., & Lundy, R. M. Productivity of clinical hypotheses on a sentence completion test. *Journal of consulting Psychology*, 1954, 13, 421-424.
- Frank, L. K. Projective methods for the study of personality. *Journal of Psychology*, 1939, 8, 289-413.
- Goldberg, P. A. A review of sentence completion methods in personality assessment. *Journal of projective techniques and personality assessment*, 1965, 29, 12-45.
- Renner, K. E., Maher, B. A., & Campbell, D. T. The validity of a method for scoring sentence-completion responses for anxiety, dependency and hostility. *Journal of applied Psychology*, 1962, 46, 285-290.
- Rotter, J. B., & Rafferty, Janet E. *Manual: The Rotter Incomplete Sentences Blank*. New York: Psychol. Corp., 1950.
- Rotter, J. B., & Willerman, B. The incomplete sentence test. *Journal of consulting Psychology*, 1947, 11, 43-48.
- Sacks, J. M. The relative effect upon projective responses of stimuli referring to the subject and of stimuli referring to other persons. *Journal of consulting Psychology*, 1949, 13, 12-20.
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Received July 15, 1965

Operant Conditioning Effects Upon Drawing Content¹

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Summary: The variability of drawing content classes and the effects of the Ss awareness of contingencies were tested through an experimental reinforcement of human and object content. In three individual sessions 60 Ss completed drawings each time responding to 25 standardized perceptual cues. In the second session, two matched experimental groups were treated with reversed forms of reinforcement. A questionnaire and interview were used to refine the data. Findings show a significant consistency of several content classes; nevertheless, the contingent classes were efficiently conditioned. The male Ss and contingency-aware pairs conditioned better than the nonawareness and female Ss. The relative lack of extinction points to the persistent effects of reinforcement.

Extensive reviews of drawing studies by Goodenough (1928), Graewe (1936), Precker (1950), Goodenough and Harris (1950), and by the present investigator (1959) point to a lack of published studies applying operant conditioning to this dimension of behavior. Operant conditioning studies related to projective testing with ink blots have been conducted by Gross (1959) and Simkins (1960). Both studies show statistically significant changes of the reinforced responses classes, though location in the Rorschach test made an exception in the latter investigation.

Although the studies of drawing number in the hundreds, there exist only a few investigations dealing extensively with the content of drawings. Investigation of content on the part of individuals or homogenous groups suggest consistency in content selection (Hildreth, 1941; Eng, 1957), but there has also been found significant differences from one developmental level to another (Pikunas & Carberry, 1961). The application of semiconstructed perceptual cues as a projective means to stimulate fairly unrestrained associations of content, and the assessment of drawing content classes under experimental conditions has been suggested by Simkins

(1962). This study follows Skinner's paradigm in that the dependent variable is the S's graphic activity, and the independent variable consists of specified verbal reinforcement and punishment intended to bring selected content classes under the control of the E.

This operant conditioning experiment was designed to answer, at least partially, the following questions: (1) With reference to identical perceptual cues, is the content of drawing consistent over a period of time with and without verbal reinforcement? (2) What are the differential conditioning effects based upon response class content? (3) What role does awareness of contingencies play in the change of drawing content?

METHOD AND PROCEDURE

A series of 100 perceptual stimuli (including the cues of Pikunas [1959] and Wartegg [1953] drawing tests) were pretested on a sample of 30 college students in order to counteract any possible rigidity or duplication in content choices. From the results of the pretesting, twenty-five partially structured perceptual cues were selected and produced on index cards (4" x 5") for the experimental procedure.

The experiment was divided into four stages. During the first stage of the experiment, the first 25 trials standardized the content performance for the sample. No reinforcing stimuli

¹The research described has been supported in part by grants from National Science Foundation and the University of Detroit Research Council.

were presented during this stage of the experiment. On the basis of human (H) and object (Obj) content, the Ss were divided into three matched groups for the subsequent two sessions. In order to match these groups ($N = 20$ each) on H and Obj content, a total of 70 Ss between the ages of 19 and 24 were recruited from the University of Detroit's introductory psychology classes. The three matched groups consisted of one control group and two experimental groups. During the second stage, the E reinforced the H class drawings for each S of the first experimental group by saying "very good" each time content of this class was produced, and he punished the Obj class of content each time by saying "not good". For the second experimental group this procedure was reversed by reinforcing the object class of content for each S and punishing the human class of content. The control group was not subject to reinforcement or punishment. In the third stage, all three groups received neither reinforcement nor punishment. In the fourth stage, all Ss were given a questionnaire assessing the Ss awareness of the contingencies and other relationships. Following the questionnaire, in accordance with a suggestion by Levin (1961), an intensive interview was conducted in order to probe more deeply the relationships between instructions, E's behavior, and Ss hypotheses about the purpose and contingencies of the experiment.

The semi-sound proof experimental room was equipped with a large desk and three chairs (the third chair was for placement of any belongings the S may have). To insure cooperation, a casual conversation of two to three minutes preceded presentation of the following instructions for the first session:

Psychologists want to get an idea of college students' drawings on the basis of perceptual cues. You will be given cards, one by one, with different marks on them. They will make you think of something to draw. You may draw anything a card suggests to you. There are 25 cards; take

about two minutes for each one. Of course your drawings do not have to be detailed. Write down a name or title of what your drawing is. Do you have any questions before you begin? Here's the first card. Tell me when you're finished.

When the S returns one card with a drawing, the E hands him the next card and continues in this manner until the series is exhausted. For the second and third sessions of the experiment, the instructions were shortened to:

Draw what the perceptual cues on these cards suggest to you. Then write down a name or title of your drawing.

While the S is drawing, the E sits at a distance of about four feet and looks toward the S. Any questions on the part of the S were answered in a noncommittal manner: "It's up to you." The same male E met all Ss individually throughout the four stages of the experiment. Except for the fourth meeting, the sessions were scheduled three weeks apart. The intervals, however, varied by one or two days for Ss who were not able to meet the E in exactly three weeks. The fourth session was scheduled as soon as possible after the third. The questionnaire consisted of factual data and nine questions such as: What do you think the purpose of this experiment was? When did you get the feeling that you were supposed to change the way in which you drew? Does it seem to you that "very good" and "not good" were at random or did it seem to fall on some classes of drawings? Some questions were pertinent to only experimental Ss.

RESULTS AND DISCUSSION

The drawing data consisted of all the index cards from all the sessions ($N = 4,750$) of the experiment that were scored according to the content classes of the Pikunas system (1959). The drawings of the three matched groups of 60 Ss ($N = 4,500$) were evaluated by the chi-square variance comparison of (a) control and experimental groups, (b) male and female Ss, (c) experimental and control

TABLE I — Content Class Frequencies and Chi Squares By Group

| Content Trial Group N | H | | | Obj | | | A | | | Abs | | | | | | | | | | |
|-----------------------------|----|-----|----------------|-----|----------------|-----|-----|----------------|-----|----------------|----|----|----------------|----|----------------|----|----|----------|----|----------|
| | 1 | 2 | X ² | 3 | X ² | 1 | 2 | X ² | 3 | X ² | 1 | 2 | X ² | 3 | X ² | | | | | |
| CO 20 | 91 | 93 | .044 | 87 | .175 | 148 | 181 | 7.358* | 185 | 9.25** | 64 | 62 | .062 | 62 | .062 | 34 | 21 | 4.97 | 21 | 4.97 |
| HO 20 | 91 | 127 | 14.24*** | 138 | 24.27*** | 148 | 126 | 3.270 | 122 | 4.567 | 68 | 63 | .367 | 72 | .235 | 45 | 34 | 2.68 | 32 | 3.75 |
| OH 20 | 89 | 58 | 10.79** | 51 | 16.25*** | 140 | 200 | 25.71*** | 218 | 43.45*** | 43 | 46 | .209 | 40 | .209 | 69 | 36 | 15.78*** | 31 | 20.92*** |

* $p < .05$ ** $p < .01$ *** $p < .001$

TABLE II — Content Class Frequencies and Chi Squares By Sex

| Content Trial Group N | H | | | Obj | | | A | | | Abs | | | | | | | | | | |
|-----------------------------|----|----|----------------|-----|----------------|----|-----|----------------|-----|----------------|----|----|----------------|----|----------------|----|----|-------|----|----------|
| | 1 | 2 | X ² | 3 | X ² | 1 | 2 | X ² | 3 | X ² | 1 | 2 | X ² | 3 | X ² | | | | | |
| M 10 | 48 | 49 | .020 | 39 | 1.68 | 78 | 96 | 4.15 | 102 | 7.38* | 33 | 27 | 1.09 | 28 | .757 | 23 | 14 | 3.52 | 12 | 5.26 |
| CO | 43 | 44 | .023 | 48 | .581 | 70 | 85 | 3.21 | 83 | 2.41 | 31 | 35 | .516 | 34 | .290 | 11 | 7 | 1.45 | 9 | .363 |
| HO | 47 | 73 | 14.38*** | 75 | 16.68*** | 79 | 53 | 8.55* | 60 | 4.56 | 29 | 27 | .137 | 35 | 1.24 | 24 | 18 | 1.50 | 11 | 7.04* |
| F 10 | 44 | 54 | 2.27 | 57 | 3.84 | 69 | 73 | .231 | 56 | 2.44 | 39 | 36 | .230 | 37 | .102 | 21 | 16 | 1.19 | 21 | .047 |
| M 10 | 48 | 30 | 6.75* | 32 | 5.33 | 67 | 108 | 25.08*** | 103 | 19.34*** | 25 | 25 | .04 | 22 | .360 | 33 | 16 | 8.75* | 20 | 5.12 |
| OH | 41 | 28 | 4.12 | 19 | 11.80** | 63 | 92 | 13.34** | 115 | 33.30*** | 18 | 21 | .500 | 18 | .055 | 36 | 20 | 7.11* | 11 | 35.41*** |

p* < .05 *p* < .01 ****p* < .001

TABLE III — Content Class Frequencies and Chi Squares of the H and Obj Triplets and of Contingency Aware and Contingency Not-Aware Pairs

| Content Trial | H | | | | | | Obj | | | | | | A | | | | | | Abs | | | | | |
|------------------|---|----|----------------|---------|----------------|---------|-----|----------------|-------|----------------|-------|----|----------------|------|----------------|------|----|----------------|------|----------------|------|--|--|--|
| | 1 | 2 | X ² | 3 | X ² | 1 | 2 | X ² | 3 | X ² | 1 | 2 | X ² | 3 | X ² | 1 | 2 | X ² | 3 | X ² | | | | |
| Triplets | A | 15 | 19 | 1.06 | 19 | 1.06 | 15 | 20 | 1.66 | 21 | 2.40 | 8 | 13 | 3.12 | 12 | 2.00 | 10 | 8 | .400 | 3 | 4.90 | | | |
| | B | 12 | 13 | .083 | 13 | .083 | 18 | 26 | 3.55 | 31 | 6.50* | 11 | 8 | .819 | 8 | .819 | 4 | 2 | 1.00 | 1 | 2.25 | | | |
| Pairs | M | 9 | 25 | 28.4*** | 26 | 32.1*** | 20 | 6 | 9.8** | 8 | 7.2* | 2 | 3 | .5 | 5 | 4.5 | 3 | 1 | 1.3 | 0 | 3.0 | | | |
| | N | 9 | 13 | 1.7 | 14 | 2.7 | 16 | 12 | 1.0 | 1 | 1.5 | 7 | 9 | .5 | 11 | 2.3 | 5 | 1 | 3.2 | 0 | 5.0 | | | |

* $p < .05$ ** $p < .01$ *** $p < .001$

triplets (Ss with identical H and Obj content for the first session), and (d) contingency-aware and contingency-unaware pairs. Since the content classes were assessed in terms of frequencies, the chi-square statistic is used for the analysis of the experimental data. The expected frequency was determined by the results of the first session.

Table I compares the human (H), object (Obj), animal (A), and abstract (Abs) content classes for the control and experimental groups. It shows that the H class changes significantly ($p < .01$) for both experimental groups. The Obj class variation is significant for the control (CO) and object-reinforced (OH) groups. However, the A content class does not change significantly for any group. The Abs content class is significantly different for the OH group only.

The sex groups show difference in H, Obj, and Abs classes of content for both experimental groups. Table II shows that the male Ss of the human-reinforced (HO) group did condition on the H class at the .001 level of significance, while the female Ss did not reach the required .05 level of significance. In the OH group, only the male Ss conditioned at the .05 level, while the female Ss did not condition at the required level of significance. In the Obj class of content the variation among all the groups is considerable and the OH group performance increased beyond the .01 level of significance. The Abs content declines significantly for the male and female Ss in the OH group only. The third session results for both experimental groups show that extinction, if any, does not reach statistical significance. But just the opposite occurs; the reinforcement maintains its effectiveness. Most of these content class differences support Matarazzo, Saslow & Pareis (1960) findings on two response classes.

In the total sample there were but two triplets (A and B) and two pairs (M and N). Table III shows limited

variation in the content choice of both A and B triplets with the significant increase in the Obj class of content for B triplet. The contingency-aware pair (M) increased and decreased the conditioned classes of drawing to a very great extent ($p < .01$) while changes in the contingency-unaware pair (N) did not reach the required level of significance.

The questionnaire and interview data point to the Ss inability to grasp the purpose of experiment, to their power to retain responses to perceptual cues, to a relatively strong tendency to respond to both reinforcement and punishment, and yet an inability to identify the content classes conditioned. Despite three-week intervals between sessions, most Ss recalled their content choices for many stimuli (a mean of about three-fourths at the third stage of the experiment). This helps to explain the significant effects of conditioning on the third session performance. Only 7.5 percent of the experimental sample became vaguely aware of both contingencies and 12.5 percent became aware of one of them. These findings are fairly consistent with Krasner's survey (1958) of 30 studies in operant conditioning, which concluded that about 5 percent of Ss became aware of contingencies. But the findings are contrary to the results of Spielberger, Levin and Shepard's (1962) investigation of awareness in verbal conditioning of personal pronouns (I, we) in which 19 out of 30 Ss became aware of contingency. During this experiment, resistance to reinforcement noted by Farber (1963) was not observed.

CONCLUSIONS

Analysis of the 4,500 drawings and the questionnaire and interview data point to the following tentative conclusions:

1. Nineteen to twenty-four-year old undergraduate Ss show a substantial consistency in drawing content classes in response to perceptual cues over a period of time, but variation in one

broad class (Obj) reached statistical significance for the control group. Significant variation also occurred for both experimental groups in the Abs class of content, which was not subjected to conditioning.

2. Ss respond efficiently to verbal reinforcement for the clearcut content classes and to a lesser degree on broad classes. Male Ss condition more fully to the contingent content classes than the female Ss do. The relative lack of extinction shows that the effects of reinforcement persist.

3. The contingency-aware Ss condition better than Ss who were not aware of contingencies, but the awareness is not a prerequisite for efficient conditioning of selected drawing content classes.

4. By implication the relative consistency of certain classes of drawing points to the considerable differentiating and possible diagnostic power of drawing content when Ss respond to perceptual cues.

REFERENCES

- Eng, Helga. *The psychology of child and youth drawing*. New York: Humanities Press, 1957.
- Farber, I. E. The things people say to themselves. *Amer. Psychologist*, 1963, 18, 185-179.
- Goodenough, Florence L. Studies in the psychology of children's drawings. *Psychol. Bull.*, 1928, 25, 272-283.
- Goodenough, Florence L., and Dale B. Harris. Studies in the psychology of children's drawings: II. 1928-1949. *Psychol. Bull.*, 1950, 47, 369-433.
- Graewe, H. Geschlechtlicher Überblick der Psychologie des kindlichen Zeichnens. *Arch. ges. Psychol.* 1936, 96, 103-220.
- Gross, L. Effects of verbal and nonverbal reinforcement on the Rorschach. *J. consult. Psychol.*, 1959, 23, 66-68.
- Hildreth, Gertrude. *The child mind in evolution: A study of developmental sequences in drawing*. New York: King's Crown Press, 1941.
- Krasner, L. Studies of the conditioning of verbal behavior. *Psychol. Bull.* 1958, 55, 148-170.
- Levin, S. M. The effects of awareness on verbal conditioning. *J. exp. Psychol.*, 1961, 62, 67-75.
- Matarazzo, J. D., Saslow, G., and E. N. Parcis. Verbal conditioning of two response classes: Some methodological considerations. *J. abnorm. soc. Psychol.*, 1960, 61, 190-206.
- Pikunas, J. *The Graphoscopic Scale: Manual*. Detroit: University of Detroit Press, 1959.
- Pikunas, J., and H. Carberry. Standardization of the Graphoscopic Scale: The content of children's drawing. *J. clin. Psychol.*, 1961, 17, 297-301.
- Precker, J. A. Painting and drawing in personality assessment: Summaries. *J. proj. Techn.*, 1950, 14, 262-286.
- Simkins, L. Examiner reinforcement and situational variables in a projective testing situation. *J. cons. Psychol.*, 1960, 24, 541-547.
- Simkins, L. A personal communication, 1962.
- Spielberger, C. D., S. M. Levin, and Mary C. Shepard. The effects of awareness and attitude toward the reinforcement on the operant conditioning of verbal behavior. *J. Person.*, 1962, 30, 106-121.
- Wartegg, E., *Der Zeichentest (WZT)*. Göttingen: Verlag für Psychologie, 1953.
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Received July 20, 1965

Revision received November 15, 1965

Personality Ratings Based on Handwriting Analysis and Clinical Judgment: A Correlational Study

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Summary: A handwriting analyst blindly rated standard handwriting samples of 22 subjects on five personality dimensions chosen and defined by her in consultation with two counseling psychologists, who rated the same subjects independently on the same scales. Although there was some evidence of inter-counselor agreement, there was no clear evidence of agreement between the analyst's ratings and those made by the counselors.

Studies of the validity of handwriting analysis have often employed dubious methodology (see, e.g., Fluckinger, Tripp and Weinberg, 1961). The present study, under strictly controlled conditions, examined the concurrent validity of ratings along certain personality dimensions performed by a highly experienced Certified Graphoanalyst, using as validating criteria ratings on the same dimensions performed by two experienced psychological counselors at the University of Colorado Counseling Center who knew the scriptors well.

In order to assure that the rating dimensions would be meaningful to all three raters and that all raters would use the rating dimensions comparably, a joint conference was held among the two counseling psychologists, the handwriting analyst, and the writers, to decide *which* particular personality characteristics would be rated, and precisely *how* they were to be defined and rated. The analyst proposed dimensions and scales, and they were accepted, modified, or rejected by the counselors, depending upon whether they felt they could use them the same way the handwriting analyst did. This resulted in a total of five five-point scales, with each scale and each point on each scale labeled by

discussion and mutual consent; detailed characterizations of the dimensions, which head the columns in Table I, can be obtained from either of the present writers. To enhance the possibility of finding correlations, a fairly broad range of personality traits was included among the five.

Two clinical raters rather than only one were employed for each scriptor to provide the basis for an estimate of interjudge agreement in the validating criterion. To enhance the likelihood of meaningful validating criterion measures and broad variability along them, a range of subjects, all well-known to both counselors, were employed: other counselors at the Counseling Center, secretaries, Counseling Center clients whom both psychologists had interviewed, and several mutual friends. To avoid possible contamination by information contained in the content of the handwriting sample if each subject were permitted to write whatever he chose, each of the 22 subjects was asked to copy in his own handwriting a mimeographed "Permission to Record" statement routinely employed at the Counseling Center. After the subject's permission to be included in the sample had been obtained (no potential subject refused), the handwriting sample, identified by number only, was sent to the analyst, and she rated the subject blind. Meantime, the two counselors also rated him, independently of each other and of the analyst. Identical rating sheets were used by all three raters.

¹Now at the Committee on Human Development, University of Chicago. The help and cooperation of the following persons is gratefully acknowledged: Frances W. Talbott, M.G.A., Certified Graphoanalyst, Denver, Colorado; and Jane Blare and Judith Phillips, Counseling Psychologists, University of Colorado, Boulder, Colorado.

TABLE I—Correlations Among Ratings by a Handwriting Analyst and Two Counseling Psychologists

| | Frankness | Self-Confidence | Variable Clarity of goals | Emotional control | Rigidity |
|---|-----------|-----------------|---------------------------|-------------------|----------|
| Counselor 1 vs. Counselor 2 | .36 | .57** | .74** | .21 | .55** |
| Handwriting analyst vs. Counselor 1 | .02 | .21 | .40 | -.46* | -.36 |
| Handwriting analyst vs. Counselor 2 | -.28 | .19 | .72** | .23 | -.12 |
| Handwriting analyst vs. Counselors combined | -.11 | .22 | .53** | -.05 | -.27 |

* $p \leq .05$ ** $p \leq .01$

Table I indicates that the Pearson product-moment correlation coefficients were by and large of a rather low order. Nevertheless, the interjudge agreement between the two counselors was at least statistically significant at the 1% level for three of the five traits, and all five inter-clinician correlations were positive in sign ($p < .05$ by sign test). There was, however, no substantial evidence of agreement between the handwriting analyst's ratings and those of the two counselors; the second and third rows of the Table indicate that one of the correlations was significant at the 5% level (but in the wrong direction) while only one was significant at the 1% level and in the expected direction. In the last row of the Table, which presents correlations between the handwriting analyst's ratings and the combined ratings of the two counselors, three of the five correlation coefficients were negative, only two are positive, and only one of these was significant at the 1% level.

Over all, then, while the data did provide modest support for the statement that the two counselors were able to use the rating scales at least somewhat comparably, there was no clear evidence that the handwriting

analyst's personality ratings were comparable to those of either of the counselors or of both counselors combined.

It might be of interest to note that the first author of the present article entered upon this project with a strong positive conviction about the validity of handwriting analysis in general, and especially of ratings made by the particular Graphoanalyst who cooperated in this study. Perhaps this can serve to make the lack of evidence of validity in the present study all the more convincing; too often negative findings are obtained and reported by researchers who do not have faith in the procedure whose validity they assess. In the present study, every attempt short of contamination was made to enhance the likelihood of finding evidence of concurrent validity, yet none was obtained.

REFERENCE

- Fluckinger, F. A., Tripp, C. A. and Weinberg, G. H. A review of experimental research in graphology: 1933-1960. *Percept. mot. Skills*, 1961, 12, 67-90.

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Received October 4, 1965

Revision received December 13, 1965

A Factor Analytic Study of the Rorschach Prognostic Index¹

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Summary: Piotrowski and Bricklin's scale, based on 12 Rorschach signs, was developed to assess long-term prognosis for hospitalized schizophrenic patients. This investigation of the dimensional structure of the scale in a group of 259 schizophrenics resulted in the description and scoring of 4 factors. They were identified as A—*Constriction*, B—*Doubtful Perception or Interpretation*, C—*Inappropriately Applied Energy*, and D—*Sporadic Arbitrariness*. The scored factors remained essentially orthogonal. As a measure of construct validity the ability of the factor scores to predict outcome of hospitalization was tested. In a subsample of 68 Ss who were followed for 4 years after hospital admission, the multiple correlations between the 4 factor scores and 2 criteria of outcome were significant. Except for Factor C, all contributed significantly to prediction for at least 1 criterion.

In 1952, Piotrowski and Lewis (1952) reported on the development of a scale to predict outcome in schizophrenia. One hundred patients, three years after their admission to the New York Psychiatric Institute, were divided into four outcome groups on the basis of retrospective clinical judgments of changes in their "level of personality functioning and socio-economic adjustment." A series of Rorschach signs were then tested for their ability to differentiate between improved and unchanged patients on the one hand and those whose condition worsened on the other. This study resulted in the retention of 15 signs which were scaled and then dichotomized to yield a cut-off point. Discrimination based on the cut-off point were consistent with actual (dichotomized) outcome for 84 of the 100 subjects.

Since the initial report, the Rorschach signs have undergone some re-

vision and have had three independent validation studies (Piotrowski & Bricklin, 1958; Piotrowski & Bricklin, 1961; Piotrowski & Efron, 1966). The ability of various raters to agree upon a given record's relative position with regard to the cut-off point has been demonstrated. Of the original 15 signs, 12 have been retained comprising the Long Term Prognostic Test Index (LTPTI), with attrition principally due to low frequency of occurrence. This report describes a factor analytic study of the dimensionality of the LTPTI.

METHOD

Subjects. The validity studies provided us with the Rorschach records of 259 schizophrenic patients. The largest group, 118 subjects, were from VA psychiatric hospitals. Others were from the N.Y. Psychiatric Institute, the Medfield Foundation, and from a VA Regional Office. The mean age of the subjects was 32 years with a standard deviation of almost 8 years. The sample was known to be heterogeneous with regard to socio-economic level, chronicity of illness, religion and intelligence level. A more extensive description of patient characteristics is available in the reports of the validation studies (Piotrowski & Bricklin,

¹ An abbreviated version of this paper was read at the Eastern Psychological Association Meeting in Atlantic City, April 22-24, 1965. This work was conducted as part of the Psychiatric Evaluation Project. The authors are indebted to Seymour Pollack, Associate Director, Medical Computing Center, University of Cincinnati College of Medicine and to Elmer L. Struening, Psychiatric Evaluation Project, for their computer analysis.

1958; Piotrowski & Bricklin, 1961; Piotrowski & Efron, 1966).

LTPTI. This scale is based on both formal characteristics of the Rorschach protocols and qualitative features of the content of responses. The scoring system used is that of Piotrowski (1957). A complete guide for scoring the signs appears elsewhere (Piotrowski & Efron, 1966). Briefly, they are as follows:

1. Color excess. The sum of M is 1 or less and the sum of weighted color responses outnumbers M by at least 3.

2. Repetition. This sign consists of applying the same visual image to at least three different blot areas; at least one of these responses must be of poor form quality.

3. Vagueness or contaminations. The essential feature is the vagueness and tentativeness with which the patient sees the percept or explains its meaning, or the inappropriateness of the fusing of separate concepts on the basis of a common element.

4. Precise indeterminate form. When offering this type of response, the patient seems self-confident, definitely knows what kind of object he "sees," but is indefinite about the visual details of the particular objects he talks about.

5. Interpretive attitude breakdown. The patient treats the percept he has offered in interpretation of the ink-blot as something in actual existence. It must be clear from the patient's remark that he has forgotten that he himself has produced the percept.

6. Absurdly inconclusive explanations. It consists of the patient's offering matter-of-factly an absurd and inconclusive explanation of at least one of his percepts.

7. No H. Complete absence of human content.

8. Poor form. F+ % less than 60.

9. Determinant scarcity. No more than 5 determinants.

10. Content monotony. No more than 5 content categories.

11. No M. No human movement responses.

12. M > 4. Five or more human movement responses.

Data Analysis. The 259 Rorschach protocols were scored for the presence or absence of each of the 12 signs. A correlation matrix of phi coefficients was then computed. With ones in the diagonals, principal component factors were extracted to a latent root criterion of 1.00. The four obtained factors were then orthogonally rotated by means of the varimax method.

RESULTS AND DISCUSSIONS

Varimax rotation of the four principal component factors resulted in the factor loadings contained in Table I. The obtained solution seemed to indi-

TABLE I—Varimax Rotation of Principal Component Factors

| Sign | Factor | | | |
|------|--------------|--------------|--------------|--------------|
| | A | B | C | D |
| 1 | .13 | — <i>.40</i> | .55 | .22 |
| 2 | .10 | — <i>.01</i> | .62 | .04 |
| 3 | — <i>.19</i> | .68 | .13 | — <i>.13</i> |
| 4 | .02 | .10 | .13 | .78 |
| 5 | .25 | .51 | — <i>.05</i> | .09 |
| 6 | — <i>.08</i> | .12 | .57 | — <i>.22</i> |
| 7 | .76 | — <i>.19</i> | .14 | — <i>.09</i> |
| 8 | .29 | .25 | .29 | — <i>.57</i> |
| 9 | .65 | .44 | — <i>.08</i> | .08 |
| 10 | .76 | .26 | .00 | — <i>.01</i> |
| 11 | .77 | — <i>.11</i> | .19 | — <i>.08</i> |
| 12 | — <i>.25</i> | — <i>.36</i> | — <i>.43</i> | — <i>.23</i> |

Note: Italicized items used in scoring factors.

cate that the signs were interrelated in such a manner as to yield a reasonable approximation of simple structure. Using the criterion of a loading of .30 or above, nine of the signs had unit complexity and the other three signs had loadings on two factors. For conceptual clarity each sign was scored on only one factor, and in each of the three instances where loadings were above .30 on two factors, the variable was assigned to the factor with the higher loading. All four factors combined accounted for 53% of the total variance contained in the twelve signs. Interpretation of the factors was made on the basis of items

loading above .30. In the description of factors that follows, variables are introduced in decreasing order of the absolute magnitude of their loadings.

Factor A—Constriction. Factor A contains 39 per cent of the variance accounted for. Failure to produce any human movement response (Sign 11) and to see any human beings (Sign 7) suggests aversion to people, lack of interest in others and in any meaningful role which one might play in interpersonal relationships. The impoverished content (Sign 10) and the limited variety of formal determinants (Sign 9) reveal a general lack of interest in the environment. Reduced responsivity with its clinical manifestations in withdrawal from interpersonal contacts, chronic depression, and/or apathy is frequent among persons who score high on this factor.

Factor B—Doubtful Perception or Interpretation. This factor involves 22 per cent of the variance accounted for. The pathology projected in this factor is one of illogical, disorganized thinking. Its manifestations are disrupted information processing with particular difficulty in integrating related stimuli (Sign 3). There is an inability to exclude unwanted sensory inputs. Idiosyncratic themes intrude into speech and concepts, and the patient experiences difficulty focusing on relevant stimuli (Sign 5). He is incapable of maintaining a set over time.

Factor C—Inappropriately Applied Energy. A high score on this factor seems indicative of a ready responsiveness to environmental stimulation which is poorly organized both as to method and goal. Associations tend to be personal, deviant, and unimaginative (Sign 2). Concepts are overinclusive and include irrelevant and extraneous aspects (Sign 6). The disruptive effects of an excessively high arousal are in evidence. The desire to be in active contact with the environment is indicated but it is largely ineffectual and thus unsatisfactory to others as well as to the patient (Sign 1). Responses suggesting restraint or

control over behavior (Sign 12) are negatively correlated with this factor. Of the variance accounted for, 22 per cent is attributable to this factor.

Factor D—Sporadic Arbitrariness. Patients scoring high on this factor display an occasional, extraordinary arbitrariness in making statements and reaching decisions. Even when they try to be precise, at times, they succeed only in making spurious and irrelevant changes which are meaningless (Sign 4). However, generally these people do have normal or superior percentages of sharply perceived forms. (Sign 8 is negatively correlated with Factor D.) They appear arbitrary when they occasionally produce the indeterminate responses without concern for accuracy. This factor contains 18 per cent of the variance accounted for.

To further explicate our measures of the four obtained factors we computed a correlation matrix of factor scores. Although the varimax rotation yields independent *abstract* factors, the method of scoring factors (actually, clusters) introduces some interdependence among scores. The factors were measured by assigning unit weights to variables with loadings above .30 (Trites & Sells, 1955). In order to avoid spurious correlation of factor scores each variable was scored on only one factor. Table II contains the intercorrelations among factor scores. As can be seen the factor scores retained a relatively high degree of independence.

TABLE II—Correlation Matrix for Factor Scores
(N = 259)

| | A | B | C |
|---|-------|------|------|
| B | .15* | | |
| C | .23** | .05 | |
| D | .18** | -.11 | -.07 |

* Significant at .05 level.

** Significant at .01 level.

As a measure of construct validity the ability of the factor scores to predict outcome of hospitalization was

TABLE III—Regression Analyses for In-Community Days and First Significant Release

| Factor | In-community days | | | First significant release | | |
|--------|---------------------------------|----------------------------------|-------------------------------|---------------------------------|----------------------------------|-------------------------------|
| | Standard regression coefficient | Multiple R with variable omitted | Per cent variance "explained" | Standard regression coefficient | Multiple R with variable omitted | Per cent variance "explained" |
| A | -.28* | .30 | 5.8 | .17 | .42** | 1.4 |
| B | -.29* | .29 | 5.9 | .39** | .25 | 11.9 |
| C | .08 | .40* | .3 | -.04 | .45** | .0 |
| D | .27* | .31 | 4.3 | -.33** | .32 | 7.2 |

Note: R = .40** for in-community. R = .45** for first significant release.

* Significant at .05 level.

** Significant at .01 level.

tested. As a part of the Psychiatric Evaluation Project (1964; PEP), a large scale intra-VA research program, 84 male schizophrenic patients were given Rorschach tests at the time of their admission to the Lyons VA Hospital. Of these 84 patients, 12 gave inadequate protocols, i. e., less than eight responses or a perseverating record with more than half of the responses of the same content, 3 died before the completion of the study, and 1 left the country and could not be evaluated. The remaining 68 patients were followed up for four years as part of the PEP research. The two criteria of hospital outcome that we concerned ourselves with in this study were In-Community Days (ICD) and First Significant Release (FSR). ICD is the number of days that the patient spent in the community during the four year follow-up period, that is, the number of days the patient was not in any psychiatric or penal institution. It should be noted that the PEP research design included elaborate safeguards against missing any psychiatric hospitalization a patient may have had. FSR is the number of days the patient spent in a psychiatric facility before obtaining a release that lasted at least 90 consecutive days. In contrast with ICD a low score on FSR is indicative of successful outcome.

Multiple regression techniques were used to predict ICD and FSR from the four Rorschach factor scores. Table III shows the results of these analyses. The obtained Multiple R of

.40 for ICD is significant at the .05 level. Because the method of multiple regression analysis maximizes the unique associations contained in a particular set of data, upon cross-validation, coefficients are of lower magnitude. In order to obtain a more stable estimate of the correlations a "shrinkage" formula was applied (Guilford, 1956, p. 399), yielding an R' of .33. Only Factor C, *Inappropriately Applied Energy*, did not materially contribute to the prediction. The other three factors were approximately of equal importance. High factor scores are indicative of poor prognosis except for Factor D for which a high score is associated with favorable prognosis. We attribute this to the fact that a high F+ % lowers the score on Factor D and that patients with good or superior form responses are more likely to be discharged and remain out of the hospital.

It is interesting to compare the result obtained when using the four factor scores as independent variables with that obtained when nine of the individual signs were used as the independent variables. (Signs 1, 4, and 12 were eliminated because of extremely low frequency of occurrence in the sample.) For the nine signs the Multiple R is .43. Since for a given sample an increase in the number of independent variables inflates the obtained R, a shrinkage formula was applied. The resulting R' for the nine individual signs was .27 as contrasted to the R' of .33 for the factor scores.

Since FSR is highly correlated with

ICD it is not surprising that the results obtained with this measure of outcome of hospitalization were similar. The multiple R of .45 is significant at the .01 level. Factor B, *Doubtful Perception or Interpretation*, accounted for the greatest share of the predictive ability of the factors. Factor D, *Sporadic Arbitrariness*, was the only other factor associated with outcome. In contrast to Factor B a high score on this factor augured well for the patient. This is the same as with ICD, where a high score on Factor D was also a favorable prognostic indicator. Although contributing significantly to the prediction of ICD, Factor A, *Constriction*, does not influence the prediction of FSR.

The nine individual signs correlate .43 with FSR. After estimating shrinkage, the individual signs yield an R' of .27 while for the factor scores the R' is .39. This difference, coupled with an analogous difference in predicting ICD, tends to support the superiority of factor or cluster score composites for future research applications.

The level of prediction with the LTPTI factor scores is significant but only of moderate magnitude. It is not as impressive as that obtained with such historic and demographic variables as length of previous hospitalization, marital status, length of period in the service and religion. At present we cannot be sure that our results are not another instance of the ubiquitous association between diverse measures of severity of illness and outcome (Fulkerson & Barry, 1961). Further research with factor scores of the LTPTI is warranted. We believe that factor scoring of Piotrowski and Brick-

lin's signs is a technique that may prove useful for furthering our understanding of the course of schizophrenia.

REFERENCES

- Fulkerson, S. C., & Barry, J. R. Methodology and research on the prognostic use of psychological tests. *Psychol. Bull.*, 1961, 58, 177-204.
- Guilford, J. P. *Fundamental statistics in psychology and education*. (3rd ed.) New York: McGraw-Hill, 1956.
- Piotrowski, Z. A. *Perceptanalysis: A fundamentally reworked, expanded, and systematized Rorschach method*. New York: Macmillan, 1957.
- Piotrowski, Z. A., & Bricklin, B. A long-term prognostic criterion for schizophrenics based on Rorschach data. *Psychiat. Quart. Suppl.*, 1958, 32, 315-329.
- Piotrowski, Z. A., & Bricklin, B. A second validation of a long-term Rorschach prognostic index for schizophrenic patients. *J. consult. Psychol.*, 1961, 25, 123-128.
- Piotrowski, Z. A., & Efron, H. Y. Evaluation of outcome in schizophrenia: The long-term prognostic test index. In P. Hoch & J. Zubin (Eds.), *Psychopathology of Schizophrenia*. New York: Grune & Stratton, 1966. Pp. 312-334.
- Piotrowski, Z. A., & Lewis, N. D. C. An experimental criterion for the prognostication of the status of schizophrenics after a three-year-interval based on Rorschach data. In P. Hoch & J. Zubin (Eds.), *Relation of psychological tests to psychiatry*. New York: Grune & Stratton, 1952. Pp. 51-72.
- Psychiatric Evaluation Project. *Intramural report 64-5: An assessment of psychiatric hospital effectiveness*. Washington: Author, VA Hospital, 1964.
- Trites, D. K., & Sells, S. B. A note on alternative methods for estimating factor scores. *J. appl. Psychol.*, 1955, 39, 455-456.
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Received August 23, 1965

The Draw-A-Person Test and Process-Reactive Schizophrenia

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Summary: The Draw-A-Person test was administered to three matched groups of 32 male Ss each: reactive schizophrenics, process schizophrenics, and normal control subjects. Patients were rated for prognosis using the Premorbid Subscale of the Phillips Scale. Drawings were rated by two judges on 80 diagnostic signs culled from the literature. No signs were found to significantly differentiate reactive and process schizophrenics, and only three signs significantly differentiated normals from schizophrenics. It was concluded that a sign approach to the DAP is insensitive to the reaction-process dimension of schizophrenia, and of only limited value in differentiating between normals and schizophrenics in general.

Since Machover's introduction of the Draw-A-Person Test (DAP) in 1949, it has become a widely accepted tool for clinical psychologists (Sundberg, 1961). Attempts to validate Machover's original hypotheses, however, have been almost uniformly disappointing (Schaeffer, 1960; Strumpher, 1959; Swenson, 1957), placing the DAP's clinical utility in doubt. One explanation for these negative results centers around the tendency for validation studies to ignore the heterogeneity within specific diagnostic categories (Rabin and King, 1958). Progress has been made in reducing the heterogeneity of the schizophrenic population by applying the process-reactive dichotomy, a system which is related to prognosis and social adequacy. This frame of reference has received considerable experimental support (Herron, 1962; Higgins, 1964) and has revealed significant within-population differences (Garmezy and Rodnick, 1959). The value of the process-reactive dichotomy for improving the efficiency of projective techniques also has been demonstrated in a number of studies using the Rorschach (Becker, 1956; Fine and Zimet, 1959; Kantor, Waller and Windler, 1953).

The purpose of the present study was to investigate the discriminating powers of the DAP when the schizophrenic population is differentiated along the process-reactive dimension.

DAP drawings of matched samples of normals, reactive schizophrenics and process schizophrenics were compared in an effort to find diagnostic signs which would differentiate these three groups.

METHOD

Samples: Three groups of 32 male Ss each were used: normals, reactive schizophrenics and process schizophrenics. All schizophrenics had been newly admitted to Stockton State Hospital, Stockton, California. All patients were free of evidence of organic involvement and had not received shock treatment for at least one month. Patients scoring twenty points or above on the Pre-morbid Subscale of the Phillips Prognostic Rating Scale were included in the process group and patients scoring ten points or below on this scale were included in the reactive group. Normals included Army Reservists, hospital employees, and local union members. All Ss were between 19 and 50 years of age. The groups were matched for age, education, vocabulary (WAIS), and socioeconomic class of father (Center's Occupational Index 1949). All Ss were reared by both parents.¹ The analysis of matching variables indicated no significant differences among groups.

Procedure: Ss were seen individual-

¹ These data were collected as part of another study (Johnson, 1964).

ly and standard DAP instructions were administered. Each S was given a sheet of 8½" by 11" typing paper and a #2 pencil and instructed to draw a whole person. When the first drawing was completed, the S was instructed to draw a whole person of the sex opposite to the first drawing. Approximately ten per cent of the patients were excluded because of uncooperativeness or unreliability.

Analysis of the Data: The literature revealed 85 signs have been alleged to differentiate diagnostic groups. A majority of these are reviewed by Swensen (1957). The data were evaluated by two clinical psychologists using this list of signs. Prior to evaluating each sign a definition, consistent with Machover's suggestions, was agreed upon by the raters. As the judges could not reliably rate five of the signs, only 80 signs were included in the final analysis. Prior to each sign's evaluation, the data were randomly combined and all drawings were divided into two categories, one demonstrating the characteristic demanded by the sign and one not demonstrating this characteristic. The data analysis utilized the number of Ss demonstrating the sign on one or both drawings. All signs reaching the .05 level were considered significant.

RESULTS

The data were analyzed with Chi Square tests using the Yates correction factor because of the small Ns included in many of the cells. Of the 80 analyses performed, only three separated the groups beyond a chance level.² These signs were (1) the presence of buttons, $\chi^2 = 18.3$, .01, $df = 5$; (2) a square body shape, $\chi^2 = 19.4$, .01, $df = 5$; and (3) proportionately small breasts on the female drawing, $\chi^2 = 21.7$, .001, $df = 5$. These signs were analyzed further to determine which group (or groups) was responsible for this differentiation.

These analyses indicated that the two schizophrenic groups were not differentiated by any of these three signs and that it was the performance of the normal group that accounted for the significant differences.

Because the process-reactive distinction was critical to the present study, all 80 signs were reevaluated using the binomial expansion comparing the performance of the two schizophrenic groups. Not a single sign was found to distinguish these two groups. On the basis of these results it was concluded that the sign approach with the DAP does not differentiate reactive from process schizophrenics and that it possesses only limited powers for differentiating normals from the general schizophrenic population.

DISCUSSION

The present study attempted to reduce the heterogeneity of the schizophrenic sample by applying the process-reactive dimension and matching all groups for age, sex, education, vocabulary, socioeconomic, and the presence of both parents through adolescence. Despite these precautions, no differences were found between the two schizophrenic groups. In view of the large body of literature demonstrating differences between process and reactive schizophrenics on a variety of measures, the failure to find sign differences between these two groups emphasizes the doubtful utility of this approach to the DAP. It should also be noted that of the three signs which differentiated normals from schizophrenics only one is supported elsewhere in the literature (Goldworth, 1950).

While the present results lend little support to the sign approach, it was observed that the two patient groups omitted more details than did their normal controls. This observation suggested that a molar analysis might illustrate differences obscured by the molecular sign approach. In order to analyze this general tendency, Good-enough scores were derived on all

²A complete list of all signs with frequencies and probabilities obtained in the present study can be obtained from the authors.

drawings. An analysis using Chi Square revealed significant differences between normals and schizophrenics ($X^2 = 7.94$, .01, $df = 1$) but again not between the two patient groups. These findings suggest that the DAP is subject to the global performance deficit characteristic of the schizophrenic population, but insensitive to the process-reactive dimension. It would appear that the DAP is, at best, a rough screening device.

REFERENCES

- Baldwin, I. T. The head-body ratio in human figure drawings of schizophrenic and normal adults. *J. proj. tech. and pers. assess.*, 1964, 28, 393-397.
- Becker, W. C. A genetic approach to the interpretation and evaluation of the process-reactive distinction in schizophrenia. *J. abnorm. soc. Psychol.*, 1956, 53, 229-236.
- Centers, R. *The Psychology of Social Classes*. Princeton: Princeton University Press, 1949.
- Fine, H. J. & Zimet, C. N. Process-reactive schizophrenia and genetic levels of perception. *J. abnorm. soc. Psychol.*, 1959, 59, 83-86.
- Garnezy, N. & Rodnick, E. G. Premorbid adjustment and performance in schizophrenia; implication for interpretations of heterogeneity in schizophrenia. *J. nerv. ment. Dis.*, 1959, 129, 450-466.
- Goldworth, S. A comparative study of the drawings of a man and a woman done by normal, neurotic, schizophrenic and brain-damaged individuals. Unpublished doctoral dissertation, Univer. of Pittsburgh, 1950.
- Herron, W. C. The process-reactive classification of schizophrenia. *Psychol. Bul.*, 1962, 59, 329, 342.
- Higgins, J. The concept of process-reactive schizophrenia; criteria related research. *J. nerv. ment. Dis.*, 1964, 138, 9-25.
- Holzberg, J. D. & Wexler, M. The validity of human form drawings as a measure of personality deviation. *J. proj. tech.*, 1950, 14, 345-361.
- Johnson, M. H. Parental identification and schizophrenia. Unpublished doctoral dissertation, Univ. of Ariz., 1964.
- Kantor, R. E., Wallner, J. & Winder, C. Process and reactive schizophrenia. *J. consult. Psychol.*, 1953, 17, 157-162.
- Maxwell, A. E. *Analyzing qualitative data*. London: Methuen & Co., Ltd., 1961.
- Modell, A. H. Changes in human figure drawings by patients who recover from regressed states. *Amer. J. Orthopsychiat.*, 1951, 21, 584-496.
- Rabin, A. I. & King, G. F. Psychological studies. In Leopold Bellak (Ed.), *Schizophrenia: a review of the syndrome*. New York: Logos Press, 1958.
- Schaeffer, R. W. Clinical psychologists ability to use the draw-a-person test as an indicator of personality adjustment. *J. consult. Psychol.*, 1964, 28, 383.
- Siegel, S. *Nonparametric statistics for the behavioral sciences*. New York: McGraw-Hill Book Co., Inc., 1956.
- Strumpf, D. J. W. A study of some communicable measures for the evaluation of human figure drawings. Unpublished doctoral dissertation, Purdue Univ., 1959.
- Sundberg, N. D. The practice of psychological testing in clinical services in the United States. *Amer. Psychol.*, 1961, 16, 79-83.
- Swensen, C. H. Empirical evaluations of human figure drawings. *Psych. Bul.*, 1957, 54, 431-467.
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Received September 13, 1965

The Structure of Homosexuality

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Summary: Based upon a critical review of the literature and upon the main body of psychoanalytic theory in regard to homosexuality, the following hypotheses were derived: 1) Differences in the structure of personality, as revealed by the Rorschach technique, exist among the active-vs.-passive and fellatio-vs.-sodomy dimensions of homosexuality; 2) differences in the number and kinds of homosexual signs are a function not only of the presence or absence of homosexuality but also the subgrouping within the category of homosexuality; 3) the homosexual group will not employ a more primitive ego adaptation or show more primary process than the normals; 4) the homosexual group is not more creative as manifest by Klopfer's scheme for evaluating creative potentials; and 5) the nature of the anxiety defended against varies with the variety of behavioral expression of homosexuality.

All of the hypotheses were supported by the statistical tests except number 5 and that part of hypothesis 2 which states that the *kinds* of signs recorded will be a function of the subgroup to which S belongs.

The purpose of this study was to contribute to an understanding of the reasons underlying the controversy and contradictory experimental evidence pertaining to the nature of homosexuality (Hooker, 1957, 1958; Wheeler, 1949; David, 1956; Fein, 1950; Doidge, 1960). The basic issues have been:

1. Do homosexuals comprise a homogeneous group; i.e., does homosexuality constitute a clinical entity?
2. Are homosexuals, as a group, more pathologic than normals?
3. Is there a creative potential associated with homosexuality?
4. If homosexuality is a defense, what is the nature of the anxiety that motivates the appearance of this symptom?

The reasons for the lack of demonstrable experimental evidence in regard to all of the above questions appear to be that: pertinent hypotheses have not been employed that would provide meaningful evidence if either supported or disproved; the nature of the samples used has tended to be inadequate; inappropriate statistical models, e.g., parametric tests, are often employed; and the meaning of Rorschach responses has been distorted

in attempts to explain away negative results.

Based upon a critical review of the literature and upon the main body of psychoanalytic theory in regard to homosexuality (Freud, 1938, 1948; Fenichel, 1945; Ferenczi, 1950), the following hypotheses were derived:

1. Differences in the structure of personality, as revealed by the Rorschach technique, exist among the active-vs.-passive and fellatio-vs.-sodomy dimensions of homosexuality.
2. Differences in the number and kinds of homosexual signs are a function not only of the presence or absence of homosexuality but also the subgrouping within the category of homosexuality.
3. The homosexual group will not employ a more primitive ego adaptation or show more primary process than the normals.
4. The homosexual group is not more creative as manifest by Klopfer's scheme for evaluating creative potentials (Klopfer, 1954).
5. The nature of the anxiety defended against varies with the variety of behavioral expression of homosexuality.

The independent variables consist-

ed of ten sub-groups within the category of overt male homosexuality ($N = 42$), the homosexuals as a whole ($N = 42$), and a control group of normals ($N = 25$). The dependent variables were 75 Rorschach dimensions and the 20 signs of homosexuality most often appearing in the literature (Wheeler, 1949). There was a total of 12 independent variables and 95 dependent variables.

The ten subgroups of homosexuality were based on the active-passive and fellatio-sodomy dimensions as well as those combinations of each dimension which in the author's experience had appeared often enough to suggest a subgroup. The ten subgroups were passive ($N = 13$), active ($N = 10$), active and passive ($N = 19$), active and passive fellatio ($N = 8$), active and passive fellatio and active and passive sodomy ($N = 9$), passive fellatio ($N = 7$), passive sodomy ($N = 5$), active fellatio ($N = 6$, fellatio ($N = 21$), and sodomy ($N = 8$).

METHOD

Subjects

All Ss had been recently inducted into the U. S. Army and were undergoing their basic training at Ft. Jackson, South Carolina. There were no significant differences in age, education, or intelligence as measured by the Army Classification Battery between any of the 12 groups. The mean age, education, and equivalent WAIS-IQ score for the homosexual groups was 21.1, 11.0, and 95, respectively. The normals' mean age, education, and intelligence were 21.8, 11.9, and 99, respectively.

Of the Ss who had a history of overt homosexual behavior and were currently engaged in homosexual activities, 95% indicated when questioned that they were determined to continue this way of life and expressed no motivation to become involved in heterosexual activity. Eighty-five per cent of the Ss had been initially referred to the Mental Hygiene Consultation

Service of the U. S. Army Hospital by their unit and the other 15% were self referrals. Prior to seeing the Examiner (E), all Ss had been made aware of their impending separation from service. All Ss did not verbalize any subjective experience of humiliation. No S was used in the study, either homosexual or normal, who had a history of organicity or psychiatric hospitalization, who had the equivalent of a WAIS-IQ score of 80 or below, or who displayed clinical evidence of psychosis.

Twenty-five men who were also in basic training but temporarily confined to the hospital for upper respiratory infections (mostly bad colds) were used as normal controls. All of these Ss were selected by picking names from the ward roster at random.

PROCEDURE

Each homosexual S, after having met the criteria for selection, was seen by the E for an interview. The main purpose of the interview was to establish rapport. During the interview it was explained that he was going to be asked to do some things for research purposes that would probably contribute to the understanding of homosexuality. The same procedure was followed with the normal Ss except that they were not informed that the study was concerned with homosexuality. All Ss were cooperative.

The Rorschach technique was then administered according to the Klopfer method (Klopfer, 1954). Inquiry was always made as to the sex of the figures on card III. In addition, each S was asked to select the one card he liked the best and the one card he liked the least. Upon completion of the Rorschach, all homosexual Ss were asked about the characteristic manner in which they performed the homosexual act. They all tended to respond readily and described both the manner in which they received the most pleasure. There were no dis-

TABLE I—Subgroups of Homosexuals

| <i>Behavioral Expression</i> | <i>N</i> |
|---------------------------------|----------|
| Passive (P) | 13 |
| Active (A) | 10 |
| Fellatio | 21 |
| Sodomy | 8 |
| Active & Passive | 19 |
| A & P Fellatio | 8 |
| A & P Fellatio and A & P Sodomy | 9 |
| Passive Fellatio | 7 |
| Passive Sodomy | 5 |
| Active Fellatio | 6 |

TABLE II—Rorschach Dimensions in Which Differences Among the Twelve Groups Resulted

| <i>Dimension</i> | <i>Level of Significance</i> |
|------------------|------------------------------|
| W | .001 |
| W | |
| D | |
| F | |
| FM | |
| M | |
| FC | |
| CF | |
| Fc | |
| cF | |
| Kf | |
| H | |
| A | |
| Ad | |
| At | |
| Pl | |
| Response to CC % | |
| Response to AC % | |
| Total Time | |
| Average RT | |
| Average RT to AC | |
| Average RT to CC | |
| W:M | .05 |
| FM:M | |
| CF | |
| Fk | |
| d | |
| dd | |

crepancies between desired manner and actual manner.

Scoring

The scoring of each Rorschach protocol was done on three separate occasions: the first, immediately after the administration; the second, several weeks later, with the identity of the group to which the S belonged missing; and the third, on those protocols where there was a disparity on the determinants assigned (3% of the cases). The scoring method used was

Klopfer's (Klopfer, 1954). All Rorschach signs were scored according to the criteria set forth by Wheeler (1949).

RESULTS

The Kruskal-Wallis tests were used to determine whether the 12 groups represented significantly different populations in regard to the 75 Rorschach dimensions. A significant difference beyond the .001 level was revealed among the 12 groups on the following Rorschach dimensions: W, W, D, F, FM, M, FC, CF, Fc, cF, Kf, H, A, Ad, At, Pl, response to chromatic cards %, response to achromatic cards %, total time, average reaction time, average RT achromatic cards, average RT chromatic cards. Significance between the .05 and .01 levels was found on the following dimensions: W:M, FM:M, CF, Fk, d, and dd; therefore, the 12 groups differed from each other beyond the .05 level on 28 of the 75 Rorschach dimensions.

The Mann-Whitney U test was applied to all pairs of groups that Kruskal-Wallis tests suggested were significantly different from each other. This was done to see if some of the pairs were not significantly different from each other on a particular Rorschach dimension even though the 12 groups as a whole appeared to be from the initial Kruskal-Wallis analysis. All pairs differed significantly from each other beyond the .05 level.

The Fischer Exact Probability Test revealed that all 12 groups differed from each other beyond the .005 level, in the total number of signs obtained by each; however, chi-square analysis demonstrated that no individual sign was able to differentiate, beyond the .05 level, between the homosexuals as a whole and the normals, or any other pair of groups. Four of the 20 signs differed between the .10 and .06 levels (numbers 2, 6, 8, 15, and 19) with the homosexual and normal groups. There was no difference between the homosexual group as a whole and normals on signs, 5, 9, 13, 14, 17, 18, and

20, while signs 1, 3, and 7 loaded in the opposite direction (in favor of the normals).

Analysis with chi-square of the nature of the anxiety defended against revealed no significant relationship with the particular variety of homosexual behavior, e.g., active fellatio, passive sodomy, etc. The most common anxieties appeared to be concerned with psychosexual inadequacy, the father figure, and hostility and disgust toward the female figure. The normal group had significantly less ($p < .01$) hostility and disgust directed toward the female figure and significantly less anxiety connected with the father figure ($p < .05$). The normals were not significantly different from the homosexuals taken as a whole in regard to felt psychosexual inadequacy.

As manifested by per cent of poor-form responses and primitive defenses there was no significant difference found between any of the groups; the evaluation of creative potentials also produced no significant differences.

DISCUSSION

All of the hypotheses were supported by the statistical tests except number 5 and that part of hypothesis 2 which states that the *kinds* of signs recorded will be a function of the subgroup to which S belongs.

The results of the study suggest that homosexuals do not constitute a homogeneous group. The homosexuals varied from each other as much as they did from the normals in regard to the structure of their personality. They were also distinctly different from each other in the total number of purported signs of homosexuality they accumulated. Although not associated with the particular variation the symptom took, the homosexuals evidenced large variation in the nature of the anxiety they were defending against. The psychoanalytic theories of homosexuality (Freud, 1938, 1948; Fenichel, 1945; Ferenczi, 1950 and Bergler, 1947) are

not supported by the wide variation between sub-groups. Previous studies have treated homosexuals as a homogeneous group. When Es assume that a non-homogeneous group is homogeneous there are bound to be discrepancies in the literature.

The issue of whether homosexuals are more pathologic than normals, in the light of the present findings, seems to have been an unwarranted assumption, based more upon arm-chair theorizing than experimental evidence. Psychoanalytic theory (Freud, 1938, 1948; Fenichel, 1945; Ferenczi 1950; and Bergler, 1947) has in part contributed to this assumption by frequently considering the symptom a result of faulty identificatory processes and pregenital fixations. Difficulties have also arisen from the fact that many Es assume by definition that homosexuality is pathologic, a view which often resulted in a refusal to look for psychopathology in a comparative sense.

The fact that no one Wheeler sign was able to differentiate significantly any of the groups from each other suggests that the use of individual signs may be premature. The use of the total number of signs obtained does appear to be a useful way to distinguish the groups from each other, especially the normals from the homosexuals.

The theoretical propositions which suggest a difference in creative potential for homosexuals as compared to normals may have to be modified if there is continuing evidence for no difference.

The results of this study should be held applicable only to young adult white males of average intelligence who have completed approximately 11 years of education. These results do, however, have broader implications in that they suggest that the label, clinical entity as applied to other diagnostic categories, might well become suspect if similar investigations were also carried out on Ss representing such categories.

REFERENCES

- E. Bergler, "Differential Diagnosis between Spurious Homosexuality and Perversion Homosexuality, *Psychiatric Quarterly*, XXI (1947), 400.
- David, A., Joelson, M., & McArthur, C. Rorschach and TAT Indices of homosexuality in overt homosexuals, neurotics, and normal males. *Journal of Abnormal and Social Psychology*, 1956, 53, 161-172.
- Doidge, W. Implication of homosexuality among Air Force trainees. *Journal of Consulting Psychology*, 1960, 24, 9-13.
- Fein, L. Rorschach signs of homosexuality in the male college student. *Journal of Clinical Psychology*, 1950, 111, 248-253.
- Fenichel, O. *The psychoanalytic theory of neuroses*. New York: W. W. Norton, 1945, 330-495.
- Ferenczi, S. *Sex in psychoanalysis*. New York: Knickerbocker Press, 1950, 296-318.
- Freud, S. "Collected Papers," London: The Hogarth Press Ltd. and the Institute of Psychoanalysis, 1948, 241.
- Freud, S. *Three contributions to the theory of sex*. New York: Random House, 1938, 561.
- Hooker, E. Adjustment of male overt homosexuals. *Journal of Projective Techniques*, 1958, 22, 33-54.
- Klopfer, B. *Developments in the Rorschach technique*. New York: World Book, 1954.
- Wheeler, W. A. Analysis of Rorschach indices of male homosexuality. *Rorschach Research Exchange*, 1949, 13, 97-126.

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Received September 30, 1965

Revision received December 17, 1965

APPENDIX I—Individual Wheeler Signs

| Sign No. | Description of Signs |
|----------|--|
| 1 | Card I, W or W Mask, or H or A face |
| 2 | Card I, Lower center D Male or muscular feminine torso |
| 3 | Card II, Lower center D Crab or crab-like A |
| 4 | Card III, W or W H — sex confused |
| 5 | Card III, W or W H — sex uncertain |
| 6 | Card III, W or W A or animal-like |
| 7 | Card IV, W or W H or A-contorted, monstrous, or threatening |
| 8 | Card V, W, W, or enter D H or humanized animal |
| 9 | Card VI, Center of Top D Object, with implication of cleavage |
| 10 | Card VII, W, W, or Top D female — derogatory specif. |
| 11 | Card VIII, Lateral D A; several incongruous ones, or one with incongruous parts |
| 12 | Card IX, Upper Lateral D Human; dehumanized |
| 13 | Card X, Top center D A; attacking or fighting over central object |
| 14 | Card X, Pink plus center blue H; with blue as oral specif. |
| 15 | Oral detail |
| 16 | Anal detail or specification |
| 17 | H or A — "back-to-back" |
| 18 | Religious specification |
| 19 | Genitalia |
| 20 | Feminine clothing |

Combinations of Figure Drawing Characteristics Related to the Drawer's Self Concept¹

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Summary: Measurements on 27 graphic traits purported to be clues to the personality of the drawer were obtained from the figure drawings produced by 213 sixth grade Ss. Multiple correlation indicated a significant relationship among all traits and self concept Q sort scores. Of the 27, 7 variables were found by multiple regression to account for 35.3 per cent of the variance; 1) abnormal placement, 2) large head, 3) ears absent (male drawings only), 4) buttons absent, 5) heels present, and 6) if the drawer was a male. Achievement test scores accounted for 15.6 per cent of the variance.

It was suggested that the presence of the six variables might tentatively be used to hypothesize that the drawer may have low self concept, especially if the drawer has low achievement scores, but that data from other sources should be used to check such a hypothesis.

PROBLEM

The purpose of the study was to determine, if possible, what measurable graphic traits and what combination of such traits found in a child's figure drawing might be demonstrated to be related to the drawer's self concept.

The use of figure drawings as a projective device with children has been based on Buck's (1948) and Machover's (1949) assumptions that certain graphic traits observable in the drawing are cues to the drawer's personality. Investigations attempting to support these assumptions have been primarily in two areas: In the first area are the studies comparing the graphic traits in drawings between normal and abnormal adult groups (schizophrenics, pedophiles, neurotics, brain-damaged, homosexuals) (Heidgard, 1958). These studies have been criticized because the diagnosis of abnormality was frequently based on inadequate, subjective data. The second area of investigation has utilized normal groups to test the applicability of the use of graphic traits in the drawing as cues to personality traits within the drawer, but the graphic traits have frequently been subjectively interpret-

ed (quality of line, for example) and related to personality traits equally subjectively attributed, such as teachers' judgment of the child's adjustment (Vane and Eisen, 1962).

MacFarlane and Tuddenham (1951) point out that in order to establish validity for projective techniques, both protocol and interpretation must be included, so that dynamics are not overlooked. Complicating the picture of validity are the suggestions by the proponents of the use of the figure drawing as a projective device that specific graphic traits reflect specific personality traits. For example, one of these traits, size of drawing, is purported to be related to a final interpretation of personality dynamics—self concept (Buck, 1948; Machover, 1949; Hammer, 1958). A previous study (Bennett, 1964) indicated that although a small drawing may be produced by a sixth grade child who rates himself low on a self concept Q sort, a small drawing alone does not automatically warrant a cookbook assumption that the drawer has feelings of inadequacy. Most clinicians agree that no single clue per se is specifically related to a personality trait or even a pattern of traits. Rather it is interrelationship of clues, or a pattern of clues, that leads to a generality about total personality such as self concept.

¹This study was made possible by the Research Council of Rutgers University.

TABLE I—Graphic Traits from Drawings Found to be Measurable

| Variable | Scoring |
|---|---|
| 1. Page placement | Normal or abnormal (normal slightly left of center) |
| 2. Hands | Showing or not showing |
| 3. Profile | Profile or full face presented |
| 4. Buttons | Present or absent |
| 5. Teeth | Showing or not showing |
| 6. Pupils (of eye) | Present or absent |
| 7. Arms | Symmetrical or asymmetrical |
| 8. Arm placement | Close to body, away from body |
| 9. Ears | Present or absent (males only) |
| 10. Head size (to total body) | Normal, abnormal (overlarge or small) |
| 11. Nose | Angles-dots-circles, elongated-shell like (phallic) |
| 12. Shading | None to 25%, more than 25% of drawing shaded |
| 13. Phallic symbols | Absent, present (hat, pipe, knife, gun, fly reinforced) |
| 14. Areas shaded | None-hair-only, legs-torso-entire body except face |
| 15. Fingers | Present, absent |
| 16. Fingers pointed | Pointed, rounded |
| 17. Heels | Present, absent |
| 18. Waist line indicated | Present, absent |
| 19. Heavy reinforcement of waist | Present, absent |
| 20. Shading and reinforcement inconsistent, both heavy and light line pressure together | Present, absent |
| 21. Toes | Pointed, rounded |
| 22. Headsize to torso | Equal or greater than 50% of torso, less than 50% |
| 23. Obvious separation of legs, gap in placement on body | Present, absent |
| 24. Neck | Present, absent |
| 25. Feet | Shaded heavier than rest of drawing, not shaded heavier |
| 26. Midline | Indicated, not indicated |
| 27. Mouth | Open, closed |

A concatenation of the characteristics of the drawing, and the weighting of these characteristics by sensitive and experienced clinicians produce meaningful inferences. But, as Meehl (1955) has suggested, a clinician may not always be an efficient computer.

Overall personality adjustment is difficult to measure objectively, but one possible approach is a measure of self concept. A self concept Q sort was developed for use with children (Bennett, 1964a),² and was used in the current study to attempt to provide answers to the following questions:

1. What graphic traits in a figure drawing purported to be clues to per-

sonality dynamics are objectively measurable?

2. Of these measurable traits, are any significantly related to an aspect of general personality dynamics (self concept) that is also (if to a limited degree) measurable?

3. Of these measurable traits, is any combination significantly related to an aspect of general personality dynamics (self concept)?

METHOD

Subjects were 213 sixth grade children (eight classes of the Wall Township Schools, Wall Township, N.J.), who were either 11 or 12 years old, with a mean IQ of 99.95 (S.D. 10.9) as determined by the Lorge-Thorn-dike Intelligence Tests. The number of boys and girls was almost equal. The mean achievement (T) score as determined by the Iowa Tests of Basic

²It should be noted that the statements on the Q sort referred to the school situation, in accordance with Cronbach and Meehl's (1955) suggestions for construct validity for Q sorts.

Skills was 50.21 (S.D. 9.9). There were no significant differences in achievement, IQ, or self concept Q sort scores on the basis of the sex of the S. A figure drawing was obtained from each S. On the basis of measurability, 27 graphic traits from each drawing were selected for use as variables, (Table I).

RESULTS

Each variable was intercorrelated with the criterion variable (self concept score) by Pearson product moment correlation for 2 continuous variables, phi coefficient for 2 dichotomies, and point biserial correlation for a continuous variable with a dichotomy.³ None of the intercorrelations was significant.

Multiple correlation among the 27 graphic traits as well as the previously measured variables of sex, IQ, achievement, area (measured size of drawing), and self concept scores indicated that taking into consideration all of the variables measured, the correlation with self concept scores was significantly positive (Table II).

TABLE II—Multiple Correlation of All Variables with Self Concept Scores

| Multiple r^2 | Multiple r | df | F |
|----------------|--------------|------------|-------|
| 0.24 | 0.49 | 31 and 177 | 1.80* |

*Significant at .01

Beta weights were obtained for each variable using the Gauss-Jordan inversion. Squaring beta weights of the variables (Table III) indicated that the unique contribution of each of the 7 variables accounted for 35.5 per cent of the variance. Achievement alone accounted for 16 per cent of the variance.

DISCUSSION

Results indicated that some of the graphic traits found in figure drawings are objectively measurable, and may in combination give some cues

TABLE III—Beta Weight Squared of Those Variables Contributing Greatest Proportions to Correlation With Lower Self Concept

| Variable | Beta weight | Beta weight squared | Per cent |
|-------------------------------|-------------|---------------------|----------|
| Placement abnormal | 0.112 | .013 | 1.3 |
| Buttons absent | 0.114 | .013 | 1.3 |
| Ears absent | 0.248 | .061 | 6.1 |
| Head size large | 0.174 | .030 | 3.1 |
| Heels present | 0.115 | .013 | 1.3 |
| Sex (male drawer) | 0.291 | .086 | 8.6 |
| Achievement (lower scores) | 0.395 | .156 | 15.6 |

about self concept. It should be emphasized that these cues may apply only to the drawings of 11 and 12 year old children. In addition, a tentative hypothesis might be entertained that the child in this age group has feelings of inadequacy if 1) page placement is abnormal, 2) the size of the drawing's head is greater than 50 per cent of the torso size, 3) if ears are absent (applicable to drawings of males only), 4) if buttons are absent, 5) heels are present, and 6) if the drawer is a male and if the drawer does not score high on a standardized achievement test.

When it is noted that achievement contributed 15.6 per cent of the variance (Table III), it seems there is additional confirmation of the notion that how a student sees himself, how adequate he feels, may well indeed be related to how well he accomplishes in school. Erikson (1960) has pointed out that the child's sense of identity rests on being all he can be, and school learning is a reflection of inner strength. If he does not learn well in school, the child may develop a sense of inadequacy and inferiority. Although girls do not differ significantly in self concept from boys (Bennett 1964) the sex difference contributed the next largest proportion of the variance, 8.6 per cent (Table 3). Apparently boys, if they produce figure drawings showing the other five graphic traits, are likely also to give evidence of low self concept. Adding this finding to the finding about

³Acknowledgement is gratefully made to Dr. Richard T. Johnson of Rutgers University for consultation on design and statistical methods.

achievement, it may be postulated that boys may be showing more often than girls feelings of inadequacy and inferiority which are related to the frequently made observation that boys do not achieve as well as girls in school during the elementary school years.

Abnormal page placement has already been singled out as a prime indicator of overall maladjustment when adjustment was judged by teachers (Vane and Eisen, 1962). If low self concept is an indication of maladjustment, as has been frequently suggested (Rogers and Dymond, 1954), Machover's (1949) assumption that abnormal page placement may be a clue for clinical analysis receives additional support.

The presence of buttons in a drawing is purported to reveal dependency needs (Machover, 1949), yet it was found that the absence of buttons made a contribution to low self concept. Dependency, it might be speculated, is more likely to be associated with lower rather than higher self concept. It was observed, however, that the buttons added to the drawings of sixth graders were likely to be carefully delineated shirt buttons on the drawings of males, and decorative additions to the drawings of females. The big, round, snowman type of button found in the drawings of younger children may well be indicative of a dependency need; the absence of buttons from a sixth grader's drawing may instead be reflecting a deficiency of a sort, which might roughly be translated into a lack of feelings of adequacy.

A prevalent interpretation (Machover, 1949) is that lack of ears may reflect unconscious desire not to hear what goes on — that is, a shutting out of the environment. The relation of such a speculation to the finding that lack of ears in a male drawing contributes to a hypothesis of low self concept seems far-fetched. Yet, children who wish to shut out their environment (especially if that environ-

ment is school) might be those who do not do well in school, and ergo may be the children who have a lower self concept.

The overlarge head size as a possible indicator of low self concept may be related to the assumption that overcompensation is revealed in drawings (Hammer, 1956). Children who are not achievers frequently have a lower self concept and may exaggerate in their drawings the offending body part, the head. A concomitant finding was that individuals who have a physically disabled body part detectably indicated the disfigurement or disability in their drawings of figures (Silverstein and Robinson, 1956). In the case of the child who does not do well in school, perhaps the disabled body part is indeed the head.

Machover (1949) comments that heels are found on the drawings of psychosexually infantile men, but in general the workers in the area of figure drawings have not extensively speculated about the meaning of heels. If heels on a drawing might possibly be considered as evidence of phallic or sexual concerns, perhaps as a drawing trait the presence of heels should have been considered as a phallic concern rather than as a unique variable. Adding the proportion of the variance contributed by the presence of heels to that contributed by the other purported indicators of sexual concern would, of course, make the indicators of sexual concern a possible variable to consider when making a hypothesis about self concept.

It is fully recognized that a self concept Q sort is subject to a variety of criticisms as a measure of overall personality adjustment. So is any other measure of personality. Future investigation might profitably further explore the possible combinations of characteristics of figure drawings as they relate to personality traits measured in varying ways.

This study again makes it evident that the cookbook approach of "this in a drawing equals that in the

drawer's personality" is not a sound way to interpret figure drawings. It should also be recognized that the proponents of the use of figure drawings as a projective device do not intend their interpretations to be so used, even though their writings tend to lead the neophyte clinician in this direction. One of the problems in teaching interpretation of figure drawings is the difficulty in spelling out the process of weaving together implications of various characteristics of the drawings to produce a meaningful interpretation. The specific cognitive steps of this process are no longer distinguishable to the expert, and are therefore difficult to communicate.

It is hoped that the findings of the present study will underline the necessity for using a combination rather than just one characteristic of a drawing to make an inference about the drawer's self concept. Hypotheses must be made tentatively, and checked with other findings from other sources. Obviously, a good way to check a tentative hypothesis about a school child's self concept is to look at his achievement scores.

REFERENCES

- Bennett, Virginia. Does size of figure drawing reflect self concept? *J. consult. Psychol.*, 1964, 28, 285-286.
- Bennett, Virginia. Development of a self concept Q sort for use with elementary age school children. *J. school Psychol.*, 1964, 3, 19-25.
- Buck, N. N. The H-T-P technique: a qualitative and quantitative scoring technique. *J. clin. Psychol. (monogr. suppl.)*, 1948, 5, 317-396.
- Cronbach, L. J., and Meehl, P. E. Construct validity in psychological tests. *Psychol. Bull.*, 1955, 52, 281-302.
- Erikson, E. H. Industry versus inferiority. *Human development*. Haimowitz, M. L. and Natalie R., Eds., New York: Thomas W. Crowell Co., 1960.
- Hammer, E. F. *The clinical application of projective drawings*. Springfield, Ill., Charles C. Thomas, 1958.
- Heidgerd, E. Research in drawing techniques. *The clinical application of projective drawings*, (Hammer, E. F., Ed.) Springfield, Ill., Charles C. Thomas, 1958.
- MacFarlane, Jean, and Tuddenham, R. D. Problems in the validation of projective techniques. *An introduction to projective techniques* (Anderson H. H., and Anderson, Gladys, Eds.), Englewood Cliffs, N.J., Prentice-Hall, 1951.
- Machover, Karen. *Personality projection in the drawing of the human figure*. Springfield, Ill., Charles C. Thomas, 1949.
- Meehl, P. E. Wanted — a good cookbook. *Amer. Psychol.*, 1956, 11, 263-272.
- Rogers, C. R. & Dymond, Rosalind. *Psychotherapy and Personality Change*. Chicago, Ill: The University of Chicago Press, 1954.
- Vane, Julia and Eisen, Virginia. The Good-enough Draw-A-Man test and signs of maladjustment in kindergarten children. *J. clin. Psychol.*, 1962, 18, 276-279.
- Silverstein, A. B., and Robinson, H. A. The representation of orthopedic disability in children's figure drawings. *J. consult. Psychol.*, 1956, 20, 333-341.
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Received June 22, 1965

Revision received December 4, 1965

'Flirting' With Death: Fantasies of A Critically Ill Woman

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Summary: This report is based on the TAT stories of a woman hospitalized for cancer. The stories are analyzed with particular attention to material suggesting that the fantasy of Death as a Lover, dating back to antiquity, continues to live in the unconscious. The *Liebested* motif in this unmarried woman follows upon a theme of disappointment in men, especially the father. It is suggested that as the patient faces the possible termination of life, she personifies death and libidinizes their encounter. The man in the death-fantasy appears to be an idealized version of the oedipal object.

A growing number of psychologists and psychiatrists have conducted empirical studies of the dying patient during the past ten years (Eissler, 1955; Feifel, 1959; Greenberger, 1965; Norton, 1963; and Weisman and Hackett, 1961). The purpose of these studies has been to learn more about the conscious and unconscious significance of death and to develop improved therapeutic techniques for helping the patient face his death.

In research concerned with the former aim, Greenberger (1965) reported that the TAT stories of women confronting death show an increase in themes of illicit sexuality.¹ The specific imagery included in this category dealt with rape, abduction, seduction, and infidelity. Curiously, these episodes typically involved a man whose identity was very nebulous. In considering the meaning of these episodes, and the identity of the male, it was suggested that perhaps Death itself was the mysterious lover.

The Death-as-a-Lover theme has a long and intricate history in art, literature, and music. Some representative examples are discussed below.

In the art of antiquity, Death was often represented by a figure with a bow and arrow, symbolism he shared with the god Eros (Gottlieb, in Feifel,

1959). The fusion of death and sexuality is also apparent in the well-known ancient myth of the rape of Persephone. Hades, the Lord of the underworld and hence the personification of death, is depicted as a dark and terrifying lover:

"...out of a chasm coal-black horses sprang, drawing a chariot and driven by one who had a look of dark splendor, majestic and beautiful and terrible. He caught her to him and held her close. The next moment she was being borne away from the radiance of the earth in springtime to the world of the dead by the King who rules it."

(Hamilton, 1940)

The theme of death as a lover was very common in the 15th and 16th centuries, particularly in the paintings and literature of the Dance of Death tradition. The Dance of Death portrays a procession led by a skeleton (Death) remarkable for both his sarcasm and his ribaldry. He is followed by the living, arranged in order of earthly rank or position; and by the already-dead, who no longer can be identified as seer, scullion, or scoundrel. Death's macabre dance conveys the message that Death is the great leveller and that no one can hope to cheat him because of his worldly importance. In many of these productions, death appears as a *roué*. For example, Kurtz (1934) refers to a Dance of the Women in which the sexual nature of dying is broadly indicated. Death chooses as his victims a young maiden, a married woman, a new bride, a pregnant woman, a loose

¹Experimental Ss in the first phase of the research were women hospitalized for cancer at a state cancer hospital; in the second phase, women hospitalized for a variety of very serious illnesses. Controls in both cases were women hospitalized for relatively minor illnesses.

woman, and a midwife.

Elizabethan literature and song contain much additional evidence of the fantasy of Death as a lover. In this 16th century ballad recorded in Smith (1849), he is depicted as an unwelcome suitor:

If Death would prove a gentleman
And come to court our dames,
And do the best of all he can
To blazen forth their names
Yet should he little welcome have
Amongst so fayre a crew,
That daily go so fine and brave
When they do face his view.

The same distaste is expressed by Romeo, when he sees Juliet lying unconscious in the tomb. He believes her to be dead, and is surprised by her rosy cheeks:

... ah, dear Juliet,
Why art thou yet so fair? Shall I believe
That unsubstantial death is amorous,
And that the lean abhorred monster keeps
Thee here in dark to be his paramour?

(Act V, Scene III, lines 101-105)

The psychological literature contains only occasional mention of the *Liebestod* theme. Bromberg and Schilder (1936) report that in the fantasies of many psychoneurotics, death is seen as the perfect sexual union with an ideal partner not to be found in life. The authors feel that unconsciously the ideal person is the incestuous love object. Freud (1925) interprets the familiar theme in myth and fairy tale of a choice between three maidens as a wishfulfilling fantasy about death. For the youngest maiden, who is the most beautiful, the best, and the one every man would choose, represents Death. This is inferred from her typical silence and concealment ("invisibility"), among other things. (Viz. Cordelia in King Lear, Cinderella, Psyche.) Freud feels that this tale of the beautiful maiden is a wish-fulfilling fantasy in which death is converted into something loved, not feared; beautiful, not ugly; chosen freely by the lucky winner, not forced upon the unlucky loser. McClelland (1963) has seen in the jesting Harlequin figure a representa-

tive of the death-as-a-lover theme. In an exhaustive and fascinating exploration of Harlequin's roots, he connects the original French Harlequin with underworld figures such as Dr. Faustus, Pluto, sorcerers, and devils. He shows that Harlequin, despite his lively manner, was a frequent commuter to and from Hell, the world of the dead. It is interesting to keep this in mind when analyzing a recurrent theme in Harlequinades. It is the theme of Harlequin pursuing Columbine, much to the despair of her father, guardian, or suitor. They find Harlequin's interest in the girl very disturbing, and the suitor is particularly concerned about Columbine's fidelity to him. Harlequin's connection with death explains the deeper meaning of the father and suitor's distaste for him and their anxiety for Columbine.²

THE SUBJECT

With this material set out as background, we now turn to the TAT stories of a woman actually confronting death. The stories are analyzed with particular attention to material suggesting that the death-as-a-lover motif, dating back to antiquity, continues to live in the unconscious. Only two of these stories³ contain more or less obvious themes of this sort, but the entire set of stories is presented here so that the *Liebestod* fantasies may be seen in dynamic perspective. Other themes are of course present — and important to consider for a total picture of the patient. However, the story-analysis which follows attempts to highlight a single vivid motif found

²The historical background just given focuses on women as the target of death's amorous advances. A substantial case can be made for men as the object of death's courtship (see Mario Praz, *The romantic agony*. London: Oxford University Press, 1933). However, the writer speculates that the libidinalization of death may be less common among men than women. The greater castration anxiety of men may be an obstacle to the development of death-as-a-lover fantasies.

³Stores 13MF and 10.

in this woman's fantasies and in the fantasies of other women facing the prospect of death (Greenberger, 1965).⁴

The subject is a 59-year-old white Protestant woman, single, with a high school education. A retired housekeeper, she now keeps house for her sister, who works. This is her only sibling. Both parents are dead. The subject had been hospitalized for nine days in a state cancer hospital at the time of testing. The diagnosis of carcinoma of the cervix had been known to her for the past week.⁵ Treatment was by radium implant. The relevant medical history indicates that the patient had had vaginal bleeding for the past two years, but that she did not become concerned about the amount of bleeding that took place until about six months ago. Even at this point, however, she did not request assistance. Her first consultation with a physician about this problem eventuated in im-

mediate hospitalization. The patient was kept in the hospital for six weeks, followed by one week at home and readmission for another six-week period. (This admission was for re-insertion of radium.) She died eleven months later of metastatic cancer, at a hospital near home. The nurses' notes indicate that she rarely complained and required a minimum amount of medication for comfort.

The subject was tested individually by a female examiner who explained that she was working on a study of imagination in schools, hospitals, and other places where large numbers of people were available to participate. The subject was instructed to make up the most interesting stories she could, was given 15 seconds to view each picture, and was allowed as much time as she liked to tell her story to the examiner.

Her stories are given in Table I.

TABLE I—TAT STORIES

1. (Boy and Violin)

I couldn't see whether he had a cigarette in his mouth or what. A little bum boy. I think he's sort of a constructive little boy; a bum, but constructive. He's looking at the wood and maybe has designs on cutting it up to see its works. He looks very pensive. Maybe he associates it with someone very dear. Maybe he hooked it, borrowed it from somebody. He's looking for the Stradivarius label inside it! I can't imagine. It doesn't look like a natural picture to me. I can't imagine a boy just sitting and looking at a violin, not touching it, handling it. (What led up to the situation?) Well, I don't know. I think he was

intrigued. He heard someone playing it and it distracted him from baseball or cops and robbers. (How does the story end?) Oh, let's be charitable. Some fairy godfather gives him lessons and he turns out to be Jascha Heifetz, if you want to be super-duper.

2. (Farm Scene)

Oh, that looks like Grant Wood. Oh there's so much! There are two generations there: mother, father, and daughter. The daughter is loaded with books. She's turning her back on the plow. Her mother is divided between the two. World goes on. Father is not obvious (sic) of any conflict. Is there any conflict there? The mother is very philosophical, I think. She accepts. The daughter will succeed, I think everything will work out harmoniously. (What led up to the situation?) Well, it does seem awfully funny for the girl to be out in the garden with her books. She might have been studying under a tree. Perhaps the noise of the plow irritated her a bit. I think the daughter is a little bored. I think she wants another young person there. A person with similar interests.

3 BM. (Figure Huddled on Floor)

This is like a painting. Ah, that is dejection. A beautiful drawing. This is 100% dejection.

⁴By linking the patient's romantic fantasies to her illness and the threat of death, we are indulging to some extent in *post hoc ergo propter hoc* reasoning. However, in the study previously cited (Greenberger, 1965), such romantic fantasies were found to occur significantly more often in women confronting death than in control patients. Also, certain story-details clearly (and perhaps consciously) pertain to the patient's present situation; story 12M, for example, deals with events in the "radiation room."

⁵The carcinoma was evaluated at Stage III, which signifies that it had metastasized to areas adjacent to the cervix and uterus.

I would say there has been a loss or a great disappointment. I think I'd like to make it a little whacky. Y'know, men so hate to cry and so seldom do. A college boy who let down and cried. We won't even make it an important exam, just athletics. I'm going to be sadistic this time. He doesn't make track or anything, but he lives it down. I guess he finds a romance; to overcompensate, we'll give him the belle of the campus.

18 GF

(Older Woman Choking Younger Woman)

Oh, this is a lovely drawing, but I don't know what she's doing. I don't know what. She doesn't have a cruel expression, but she has a funny grip on her. Because of her grip I would say she was a psychiatric case. They don't all look vicious; some of them can smile. That's her daughter, and there's some queer complex there. I don't understand. I know. The father is very fond of the daughter, and by contrast, the mother isn't, or thinks she isn't. She's developed this queer complex. I think what I've said is silly. The daughter's been out late at night. She sneaked out and had a harmless good time. Her mother is overpossessive. She doesn't want her to have a good time. She doesn't murder the girl, but frightens her. She still has a very nice face. I think maybe that's all she wants to do to her—frighten her. That's the worst thing you can do to anyone: inject fear. I hate to say that about the poor woman.

6 BM (Old Lady and Young Man)

Well, the little old lady looks sort of concerned about something and the gentleman looks reluctant. What I come out with is so ordinary, so blasé! I think the old lady has quite a fortune. She's quite fond of her son but not quite so fond of the Broadway glamour girl. But he's made up his mind, he's made a decision, that it's the glamour girl and not the fortune. He's growing up and has to say goodbye to mother. She doesn't want to hang on either. So he's being cut off. But he's fond of her, he has human feelings. He feels sorta cruel. By calling her the Broadway girl I don't mean "bad"—she's a real trooper. The best decision he ever made. I think she's such a fine girl she eventually wins over the mother. Horatio Alger stuff!

12M ("Hypnotist")

I don't know what he's trying to be, Sven-gali or a bit of ectoplasm with all that glare around him. The boy is evidently asleep, in a coma, trance, hypnosis. I don't like supernatural themes, but that certainly suggests something supernatural, very mystifying.

Let's call the old man in the radiation room with the glare around him a visitation. To the boy he is a vision. The boy is asleep. Sort of like Abou Ben Adhem. I think he'll have a spiritual feeling. Perhaps the boy has an injury, suffering from something like—it doesn't matter what we name it. In the end he's cured by faith and the gentleman is the one who instills his faith.

7GF (Young Woman Leaning Against Door)

Another dejected picture. Locked out or in. Such morbid pictures! I'm wondering why she's barred or barring. Sometimes...oh I guess I'll be real morbid. Her husband's an alcoholic. It's the same old story. She's used her patience, sat through many depressed sessions. He comes home. He's been on the wagon 6 months and he starts again. She feels she can't take it. She's also discouraged, and like most normal alcoholics who've been in charge she weakens and goes out and sits through another session with him. This is terrible. But alcoholism is such a problem. She has all the right answers, such as paraldehyde. She gives him sedation, medication, and after a few days he gets on his feet again.

13MF (Man and Reclining Nude Woman)

Oh, your people are sad! I'm not going to say he murdered her. He tried to, but he didn't. He's perfectly scared realizing he came darn near it. Mmm. We'll have a very common, ordinary story. He thinks she has someone she likes better. Just the same old jealous fancy. He finds out later he was all wrong. He feels like shooting himself but he doesn't.

10 (Couple Embracing)

It's awfully hard to think of stories. I first thought it looks like he's enticing her, if he's a he, but I don't like the theme of enticement. He's imparting some kind of message—a very special message. It has such an ethereal quality. He's telling—assuring her, that something is all right, but I'll be damned if I know what. What could it be? It looks like a romantic theme, but I'm trying to steer away from a romantic theme. This is a tough one. There's a third person concerned. I think maybe I will get back to romance. A third person is concerned, an illegitimate child that belongs to them. It was put in a home and lost to them for years, and finally they traced it, and it means a lot to them. They've come into a fortune, they're getting along, and they want their child to have it. They want to establish the legal right. They knew the address, arranged to meet the girl, and tell her that she's to have everything.

I don't think it's very wise, do you, when old people take a step like that? There's something in their expression—kinda cozy. Don't tell me it's two men! If I weren't cornered in bed, I wouldn't tell such awful stories.

8BM (Operation Scene)

Oh my gravy! Looks like surgery. It's not possible that it's surgery. We'll make surgery out of it, though it's not orthodox hospital surgery. Looks like something of an emergency in an army camp. The fellow in the foreground looks very incongruous and out of place. Maybe he's just squeamish and can't look, can't help. Maybe he was involved in some way in an accident. Maybe it wasn't an army catastrophe but carelessness about guns. But though it might have been, he got the man to a place where he'd get help. He's sticking around until everything's out of danger. (How does the story end?) Well, the operating crew was very careful and successful.

12F (Old Hag and Younger Woman)

Oh boy! Mirror, mirror on the wall. I think I'll make this one allegorical. The old lady of course is a symbol of old age, loss of beauty; and the other one is a symbol of womanhood, not youth, but womanhood in the prime, more or less. Oh, this is easy because it's an allegory! And each haunts the other, the young woman haunts the old woman with memories, and the old woman haunts the young woman with undesirable

things to come. And although it looks to be a big contrast between the two, they're really the same sisters under the skin. They're both the same. The different faces of time, the present and the future. What the younger woman sees is herself in later years. The element of different time is merely imaginary. And what the older woman sees is her real self back in time. It's one of these very subtle things. Borders on insanity, I guess! (How does the story end?) Let's make the last picture entirely different. There's a woman of about 20, and she laughs it off. She's not willing to face it.

16 (Blank Card)

Going back to the little boy who was looking at the violin. Every year a group of real Hungarian gypsies came to town, and the little boy got very friendly with a little gypsy. As usual, they were wonderful violinists, as the Hungarians are. The little boy is playing around the camp; he's a trusted friend of the gypsies, and he's really been sold on that music. He has a compulsion to play it and this compulsion leads him to steal the violin one night. But he just has a hunk of wood, not the music, because he's not a musician. He prefers the night and the stars and the gypsies to the hunk. He has the courage to take it back one night. It makes the gypsy so happy to get the violin back that he's not mad, and he loves the boy even more. That shows that when you steal something, you're not really getting anything.

DISCUSSION OF THE STORIES

In the first story, *S* reveals ambivalent attitudes towards men. She seems to derogate them on the one hand (the little "bum boy"), and to admire them on the other hand (the renowned Heifetz). The more striking aspect of her feelings is perhaps the need to downgrade the male: for the boy is surely not dressed in a way to suggest a bum and there is something belittling in suggesting that he only was successful because a magical fairy godfather intervened. In the next story, *S* again expresses negative feelings towards a man, this time a father figure. She derogates him and his way of life. ("turns her back on the plow"), and wishes someone else were there to whom she felt closer.

In her story to the following picture,

3BM, *S* tries unsuccessfully to deny the depressive affect she perceives ("A beautiful drawing. This is 100% dejection.") An interesting sequence then occurs. She suggests that the story-character has experienced a "loss" (a word often connoting death), but then suppresses this theme and tells about a rather trivial disappointment. If we retain the first theme, however, we find that the person who suffers a "loss" is compensated by a romance with a very important person. *S*'s perception of the central figure as a male instead of a female suggests that the theme of the story is disquieting and must be put at some remove from herself.

Card 18GF seems to trigger a more direct expression of the theme hinted at in the previous story: that death

and love may go together in some way. The father is involved in a romance with his daughter, but the daughter's part in the oedipal situation is implicitly denied. She is pictured as sneaking out of the house late at night to have a "harmless good time" with someone else, and via this rendezvous, coming close to death. This sub-plot can be construed as a defense against the oedipal attraction. The "other man" can be seen as a substitute for the oedipal object, whose equivalence to the father is revealed by the mother's anger at the girl and by the fact that death is also the possible punishment for a relationship with the "other man." It is worth bearing in mind that the girl nevertheless goes to some trouble to meet this man.

In 6BM we again have the theme of a glamorous romance (as in 3BM). Two elements in the story are similar to ones found in 18GF. First, the parent disapproves of the child's love object — another aspect of the oedipal motif. Second, the hero again renounces the parent and embraces someone else.

12M is a particularly interesting story. After three successive stories primarily about romance, we come to one about illness. The idealized figure who cures the sick person is, however, quite a sinister character. There is something supernatural about him, and the storyteller likens him to Svengali. A digression about this famous literary creation may be pertinent at this point.

Svengali was the dark, lascivious, and malevolent hypnotist whose love brought death to beautiful Trilby. He originally forced his way into her life by means of his ability to cure her "pains" through hypnosis. (Recall that "pain" is one of the chief marks of cancer, and of radium treatment.) Then he used his power over her to make her into a world-famous singer, and from this point onward Trilby was almost literally dead to the world. She was not aware of her renown; she

was not aware of having spurned her former and very wholesome loved one, little Billee; she was not aware of Svengali's cruelty to her. After Svengali's mysterious "death", she was taken in and cared for by little Billee and other old, dear friends. Nevertheless, she developed a sickness that doctors could not fathom and died, Svengali's name on her lips. We are meant to attribute Trilby's strange behavior, including her death, to hypnosis, and to see Trilby acting as she is forced to, not as she freely chooses. A quite different interpretation of Trilby's behavior *vis à vis* Svengali is suggested by little Billee: "*She was so fond of him, she f-forgot everybody else! She's gone straight to him, after all — in some other life!*" In other words, Trilby was willing, not forced! And Svengali is, at heart, a characterization of Death. (cf. Freud's "The theme of the three caskets.")

How does S deal with Svengali? At the most conscious level, her story really does not deal with him at all: it simply deals with S's view of her illness, treatment, and doctor. But the Svengali theme is there in distorted form. The patient seems to be a willing subject for the hypnotist, as Trilby unconsciously may have been. Here, however, the malevolent hypnotist does not bring death: he is transformed by denial and reversal into a saviour. The patient recovers. The hypnotist's sexual aspects apparently are repressed. That the S is aware of his seductiveness at some level is suggested by her statement that she does not like the theme of this story. She later expresses distaste, *in the identical words*, for the theme of her story to picture 10: an overt theme of enticement and illicit sexuality.

In the next story, 7GF, S again tells a story about a saviour. The person rescued in this case was in danger of succumbing to his impulses, in danger of giving way to a state of altered consciousness, like hypnosis (and death). Was there also an impulse to give in

to the Svengali-like figure in the previous story? And was such a wish partly behind S's disclaimer, "I don't like supernatural themes"?

In 13MF the theme of a surrender to unsanctioned impulses continues to unfold. The triangular situation is repeated, but this time involving a woman, her boy-friend or husband, and an unidentified man whom the former jealously fears she may prefer. The woman is absolved. But in the next story (10MF) the denial is undone: an illicit romance is uncovered for us. The story concerns the romance of a woman and a man she has not seen for a long time. S's reluctance to embark on this theme, the "very special message" the man has come to impart, the ethereal atmosphere, the plans made with him for a bequest, all suggest that the man is connected with death. Further, his identity is somewhat shadowy, and his embrace represents sexual union. This is perhaps the most transparent statement of the death-as-a-lover motif in S's stories.

In 8BM, S seems alarmed by the hostile cues in the picture, and from here on we see greater defensiveness. It is as though thoughts of death only can be tolerated in a romantic setting. This could also be said for 12MF, where the theme of aging, presented in terms of mother-daughter competition ("Mirror, mirror on the wall, who is the fairest of them all?") is anxiously denied and intellectualized. More likely here, perhaps, is the explanation that having come so close to stating an overt *Liebestod* theme, S wants to avoid further fantasies of this sort; and stories dealing with oedipal rivalries seem to trigger *Liebestod* fantasies.

The final story suggests several interpretations. First, it invites comparison with picture 1. In the latter, a little boy is charmed by the violin music of someone who is dear to him. He either steals or borrows the violin, and later becomes a great musician, thanks to the intervention of a fairy god-

father. In the last story, the violin is clearly stolen from a beloved gypsy friend, and again the child has no talent of his own as a musician. He cannot play it and renounces it. Has S come to terms with the possibility of death, and told us that she must give up magical wishes for a glorious future? (Once again loss is compensated by love: the gypsy loves the youngster "more than ever.")

The usual association of music with life and vitality offers a second possible focal point. Is S saying that one cannot cheat death, one cannot take more life than one has? (The violin he steals is figuratively dead in his hands, "just a hunk of wood.") This theme is certainly congruent with the spirit of the Dance of Death: death is inexorable.

Third, we may dwell on the boy's fascination with the gypsies: the dark, mysterious, sensuous wanderers on the fringe of society whom we somewhat mistrust and fear. These characteristics place the gypsy among the uncanny. The child's greatest wish seems to be to feel united with them. Admittedly a most tenuous interpretation, it could be that this story is a disguised expression of the wish to die. Whereas the child in the first story is allotted worldly fame, the child in the final story associates himself with people of another world. Death is represented by a dark and interesting gypsy gentleman, but the sexualization of death is countered by making his partner a youngster, and a boy.

SUMMARY AND CONCLUSIONS

The following dynamic progression occurs in this woman's story. The first sequence of stories reveals a derogating attitude towards men, including the father (1, 2, 3BM). The second sequence of two stories revolves around the oedipal bond and presumably describes the rejection of the incestuous love object for another individual (18GF, 6BM). The third sequence moves on to a rendezvous with

a man who is variously pictured as an illicit lover, a man with strange powers, a man who entices the woman with a special message (12M, 13MF, 10). We have interpreted this figure as Death himself.

The dynamic setting for *Liebestod* fantasies in this woman appears to be a disappointment in the father. (It is of considerable interest that this woman never married.) Perhaps as she confronts death, she creates a fantasy in which death entails a realization of the oedipal wish. The idealized father-figure — supernatural healer, wonderful musician, etc. — prevails over the derogated father in these death fantasies (cf. Bromberg and Schilder, 1936). The fantasy of Death as a lover must be warded off, however: in the interests of preserving life and of keeping peace with the superego.

Once the preservation of life is no longer possible, may unconscious *Liebestod* fantasies have a useful function after all — namely, that of making death less fearsome? (It is sometimes said that women die with less anguish than men; and we have suggested already that the libidinization of death may be more common among women.) On this speculative note, it is interesting to remember that the patient, who "flirted" with death in fantasy, faced death with apparent equanimity in reality.

REFERENCES

- Bromberg, W. and Schilder, P. The attitude of psychoneurotics towards death. *Psychoanal. Rev.*, 1936, 23, 1-28.
- Eissler, K. *The psychiatrist and the dying patient*. New York: International Universities Press, 1955.
- Feifel, H. (Ed.). *The meaning of death*. New York: McGraw Hill, 1959.
- Freud, S. The theme of the three caskets. In E. M. Jones (Ed.) *Collected papers*, Vol. IV. London: Hogarth Press, 1925.
- Gottlieb, C. Modern art and death. In H. Feifel (Ed.) *The meaning of death*. New York: McGraw Hill, 1959.
- Greenberger, E. Fantasies of women confronting death. *J. Consult. Psychol*, 1965, 29, 252-260.
- Hamilton, E. *Mythology*. New York: Mentor Books, 1940.
- Kurtz, L. *The dance of death and the macabre spirit in European literature*. New York: Publications of the Institute of French Studies, Inc., 1934.
- McClelland, D. The Harlequin complex. In R. W. White (Ed.) *The study of lives*. New York: Prentice-Hall, Inc., 1963. (Also in D. McClelland, *The roots of consciousness*. Princeton: Van Nostrand Co., Inc., 1964.)
- Norton, J. Treatment of a dying patient. In R. Eissler, et al. (Eds.) *The psychoanalytic study of the child*. Vol. XVIII. New York: International Universities Press.
- Smith, J. R. *Holbein's dance of death*. London: 4, Old Compton Street, Soho Square, 1849.
- Weisman, A. and Hackett, T. Predilection to death: death and dying as a psychiatric problem. *Psychosom. Med.*, 1961, 23, 232-256.

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Received September 16, 1965

Revision received December 1, 1965

1966 ANNUAL WORKSHOP IN PROJECTIVE DRAWINGS

The Annual Workshop in Projective Drawings will be held at Lincoln Institute for Psychotherapy, 340 West 58th Street, New York City and will be conducted jointly by Emanuel F. Hammer, Ph.D., and Selma Landisberg, M.A. The Basic Workshop will meet July 25th, 26th, and 27th, from 10 a.m. to 12 p.m. and from 1 p.m. to 3 p.m., daily. It will provide a grounding in fundamentals, and go on to considerations of differential diagnosis. The Advanced Workshop will meet July 27th, 28th, and 29th, from 10 a.m. to 12 p.m. and from 1 p.m. to 3 p.m., daily. It will deal with the projective drawing appraisal of psychodynamics, conflict and defense, psychological resources as treatment potentials, and projective drawing usage in therapy. The Workshops will include the House-Tree-Person Drawing Test, the Draw-A-Person Test, Draw-A-Family procedure, Unpleasant Concept Test, Draw-An-Animal Test, and free doodles. The drawings of children, adolescents, and adults will be considered. The text, "The Clinical Application of Projective Drawings" by Dr. Hammer (Charles Thomas, Publisher, East Lawrence Avenue, Springfield, Illinois), is suggested as preparation for the Workshops.

Information regarding admission, fees, and requirements may be obtained by writing to Miss Selma Landisberg, 166 East 35th Street, New York, New York 10016.

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The Department of Psychology, the University of Chicago, is pleased to announce that Dr. S. J. Beck will again conduct two workshop seminars in the Rorschach Test.

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BOOK REVIEWS

Arnheim, Rudolf, "Picasso's *Guernica*, The Genesis of a Painting," University of California Press, Berkeley, California, 1962. Pp. 139, \$8.50.

This is an unusual book. It concerns a single painting by a very singular artist. Yet, in the study of this painting there are the further studies of the many sketches and paintings that influenced the finished *Guernica* and which aided in the development and birth of what has been called one of the two most important of Picasso's works.

A brief account of the events which led up to the painting and some indication of the painting itself bear reporting at this time. Picasso, who was born in Malaga, Spain, in 1881 had moved to Paris in 1904 but maintained a strong affection and attachment for his native country. In January, 1937, the Spanish Government in exile commissioned him to paint a mural for its building at the World's Fair in Paris. For some time the artist was unable to approach this assignment for want of a possible subject and motif. Then, on May 1, 1937, Pablo Picasso started working furiously—he now had what he was seeking. Two days before, German bombers, under Hitler's orders but in the pay of Franco, bombed the town of *Guernica*, virtually annihilating this center of Basque cultural tradition. The hour chosen was that at which the streets were thronged with people.

The painting, exhibited in June, 1937 in the Spanish pavilion, created an outpouring of emotional feeling ranging from indignation and unbridled anger to superlative praise, unquestioned approval, and varied and contradictory interpretations. Picasso was silent as to the meaning of the painting for he felt that the painting, itself, needed no explanation. Yet, most critics saw in it the artist's revenge for the bombing, his desire to express his resentment against brutality, his "attempt at balance between misery caused by war, and the anguish of women" as stated by Roland Penrose, and an indictment of violence. Boeck and Sabartes, two very close friends and associates of Picasso, in their book, *Picasso*, said: "Picasso had intended this work as a protest against modern warfare, and used it for political purposes." It is highly probable that Picasso was also thinking of his mother who was still living in Barcelona and had been sending him her

views of the civil war. Picasso, himself, said in an interview with Christian Zervos, that a picture lives only through the man who is looking at it. Thus, the reaction and interpretation of Picasso may have been different from that of any of the viewers of the painting.

This book, then, is a report of how the painting "*Guernica*" grew from its early outline strokes to the finished painting, a large, masterful mural, 11 feet six inches by 25 feet 8 inches in size. That we are able to see the photographs which showed the development of the painting is due to the fact that Picasso's then girl-friend, a fairly well-known photographer, realized the great value in shooting the changing mural. Rudolf Arnheim reproduced these photos in his book, together with a clear, imaginative report of when each picture was taken in the total sketching, what interpretations can be made of the many details contained in the development as well as in the finished product. He showed how Picasso struggled to get the fullest expression in each part of the painting and how his desire for meaning and symbolism required frequent modifications. Arnheim devoted the first portion of the book to the topic of creativity. Here the psychological factors are clearly evaluated, drawing heavily upon the concepts of Freud, Jung, Guilford, Kubie, the Gestaltists, and others. The author leans heavily upon Gestaltist thinking in his final interpretation and conclusions regarding the development of the painting. As he stated, "... the work of art cannot unfold straightforwardly from its seed, like an organism, but must grow in what looks like erratic leaps, forward and backward, from the whole to the part and vice versa." "Visual thinking, then, was goal-directed throughout."

Arnheim is to be congratulated in making not only this masterful painting but all works of art more meaningful. The genesis of a painting takes more than genius—it requires emotion, a goal, and in the case of a Picasso painting a *Guernica* a desire to stir the world to action. Both Arnheim and Picasso succeeded in their respective goals.

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Blank, Leonard, *Psychological Evaluation In Psychotherapy: Ten Case Histories*. Chicago: Aldine, 1965. Pp. xii + 364, \$8.95.

This is an attractively designed, scrupulously organized, no words wasted book. Most assuredly, in this book the blind do not lead the blind. (W. Klopfer, 1964). We have an exceptional W with but an occasional dd to detract.

It is my observation that most therapists read the psychological report or review the protocols, and file. How often do we reread or regard the report's contents "as a road map or itinerary of the terrain (we are) to traverse with the patient?" (Fred Brown, Foreword; also, Brown, 1960). Further, it is Dr. Blank's conclusion that, "Post hoc analysis, rather than prognosis, proved to be rewarding . . . In reviewing treatment notes, the psychological evaluation often provided a condensed and revealing summary of what had transpired. That is, apparently confusing and disjointed therapy data were lent meaning and consistency by referral to the test material." (p. 127).

Ten patients were seen by the author for psychological evaluation and subsequent individual psychoanalytic psychotherapy. All received the Rorschach, TAT, DAP, MMPI, Interpersonal Check List, and diagnostic interview. Three were in addition administered the WAIS, one the B-G. Among the cases ("more frequently encountered clinical problems") are: Miss Amorality—character disorder with masochistic features; A Case Of Orality—anxiety reaction; Pollyanna—schizoid with marked hypochondriacal features; A Case Of Shakes—hysterical personality; Miss Fantasy—emotionally unstable personality with psychotic potential. Appendices contain the diagnostic interview, complete protocols, plus running interpretations. In the text proper, each case is dramatically introduced with beautifully reproduced figure drawings. Following, is a diagnostic overview, the psychological report, and, the essence of the book, therapy notes accompanied by psychological test interpretations corroborating treatment session content. In the case of Miss Amorality, for example, 102 test interpretations correspond with content (including dreams) of the 24 therapy sessions.

Four patients were seen approximately 24 sessions, two well beyond that, and three for 3, 10, and 13 sessions. Eight of the ten patients "did not seek psychotherapeutic treatment but were 'convinced' by their referring physicians . . ." When Dr. Blank evaluates

treatment outcomes, he counts three failures, four partial successes, and three successes.

And now a patchquilt of comments, reactions, and questions, unnumbered and unparagraphed to save space. Was one test in Dr. Blank's battery more sensitive to the course of treatment than the others? Would certain tests (e.g., MAPS, Szondi) and test modifications (e.g., Negation TAT, Family Rorschach) have been more illuminating than the tests used? Dr. Blank examined patients he later treated. Is this more or less desirable than referral to another psychodiagnostician? How much did the diagnostic interview alone predict? Interview strongly suggested that Pollyanna would undoubtedly leave treatment. (She terminated after three visits). While it may be true that we tend to overpathologize (Little and Shneidman, 1959), some also underpathologize. Occasionally, blatantly morbid, bizarre test responses are so labeled, but the word schizophrenia never appears. On the other hand, Miss Fantasy—an emotionally unstable personality, is a superb illustration of restraint in overpathologizing: "It would be easy to dwell on the pathology of this patient since it was exuded in huge blobs like octopus ink, probably serving much the same function." (p. 191). Although the approach is psychoanalytic and the bibliography supports this, the WAIS for some reason does not appear to be interpreted along these lines. (Waite, 1961). The unscored Rorschach apparently reflects a bias toward exclusively content interpretation. Fine with me, perhaps not for others. Like all of us, Dr. Blank sometimes uses cookbook interpretations—a woman draws a male first, therefore identification is masculine. (Hypochondria). Test interpretations are right to the point but often quite skimpy (especially TAT). How far beyond the 24-sessions mark would tests and perhaps retesting be of assistance? In the Case of Denial, there is a review well past 24 sessions but unaccompanied by test data. An exceptionally important observation by Dr. Blank should have been elaborated and documented—" . . . frequent referrals back to the test material helped clarify for the therapist what was going on." (p. 167). How? Although I am uncertain of Dr. Blank's use of the term countertransference, this is commented on very briefly in *The Renegade*. The possibility of predicting the nature of the countertransference from the patient's test response is intriguing. To my knowledge, this is a quite original idea. Finally, the teaching possibilities are numerous.

In the Preface, Dr. Blank states the pur-

pose of his book: "... to enable the reader to judge whether psychological evaluations elucidate the material presented by patients in psychotherapy." (p.ix). Skillfully, creatively, conscientiously, this goal has been achieved.

REFERENCES

- Brown, F. Contribution of the psychodiagnostician to problems of therapy. *Amer. J. Orthopsychiat.*, 1960, 30, 811-818.
- Klopfcr, W. G. The blind leading the blind: psychotherapy without assessment. *J. proj. Tech.*, 1964, 28, 387-392.
- Little, K. B. and Shneidman, E. S. Congruencies among interpretations of psychological test and anamnestic data. *Psych. Monog.* 1959, 73, 1-42. (Whole No. 476).
- Waite, R. R. The intelligence test as a psychodiagnostic instrument. *J. proj. Tech.* 1961, 25, 90-102.

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Clinard, Marshall B. (Ed.), *Anomie and Deviant Behavior: A Discussion and Critique*. New York, Toronto, London: Collier-Macmillan, Ltd., 1964, Free Press of Glencoe, xii, pp. 324.

The concept of anomie, in the original sense of "normlessness", was first introduced into sociology by Emile Durkheim, a French sociologist, in the late nineteenth century, as a formulation to explain a type of suicide associated with a complex, industrial society. The term anomie, with its Gallic spelling, was devised by Durkheim from a sixteenth century English word, *anomy*, meaning a state of lawlessness that creates a condition of disorder, doubt and uncertainty. In 1938, Robert K. Merton expanded the concept of anomie to include other varieties of deviant behavior such as crime, delinquency, mental disorder, and alcoholism, all having their origin, in large part, from inadequacies in the social structure.

This volume presents, in a greatly expanded form, a series of papers originally presented at the American Sociological Association meetings in Washington, D.C., in 1962. The participants, selected on the basis of their prominence in sociological research in various areas of deviant behavior, were asked to discuss the anomie theory in relation to their

special fields of interest. These basic papers were followed by a critique by Merton.

In the introductory chapter Clinard discusses at length the theoretical implications of anomie and deviant behavior. He examines critically a variety of related current sociological concepts—innovation, ritualism, retreatism, rebellion, social interaction, opportunity structure, illegitimate means, alienation, and the double failure hypothesis. The term *anomia* is used in sociology to designate a quality or state of mind in an individual who has become maladjusted as the result of anomic social structure. (According to the *Psychiatric Dictionary* by Hinselwood and Shatzky, *anomia* was used by Benjamin Rush to mean 'congenital defect of the moral sense'. In neurology, *anomia* is used to indicate an inability to name objects.) Clinard also reviews the varied reformulations of the anomie theory which have appeared in the last 25 years, together with a number of specific objections to this theory.

Lemert examines the concepts of social structure, social control and deviation, pointing out that the variations in concepts and the lack of uniformly accepted definitions indicate a weakness of relevant sociological theory and limitations in our knowledge of social norms. He refers the origins of norms to the interaction of members of families and of other social groups:

"Active social control is a continuous process by which values are consciously examined, decisions made as to those values which should be dominant and collective action taken to that end."

Lemert also presents a fascinating account of "white collar crime", which includes illegal price fixing, adulteration, tax evasion, collusive bidding, anti-trust violations, labor rackets, traffic violations, and disregard of axle-load regulations by trucking firms. He points out that much deviation in our society is contingent on the action of government regulatory agencies, which by the imposition of new rules or reversal of a decision may abruptly change or redefine deviant behavior. At the same time, regional variations in interpretation and enforcement of the law create shifting values in a mobile society.

James F. Short, Jr. discusses the relationship of gang delinquency to anomie. His interpretation, based on his own study of delinquent gangs in Chicago, conceptualizes the process of becoming deviant as "dynamic and continuous, rather than in terms of discrete categories of conformity and deviance". He believes that consideration of group proc-

ess and the nature of various subcultural systems are necessary for more complete understanding of the behavior of members of delinquent gangs, individually and collectively. This interpretation differs from theories which more simply relate gang behavior to common problems of economic or status deprivation.

In the section possibly having the most interest for psychiatrists and psychologists, "Anomic and Mental Disorder", Dunham examines critically the attempt to view mental disorder, particularly schizophrenia, as an outgrowth of an anomic situation. He emphasizes that the term anomie itself has often been used loosely, by sociologists:

"Sometimes it refers to a condition in the social system where ordinary controls have been broken down or where some dysfunctional institutional situation has emerged. At other times anomie implies a lack of equilibrium in a social system. In still other instances, it refers to decay and disorganization of an institutional structure in a social system. Anomie has also been used to refer to a condition in which a person seems to be floundering in a normless social environment and life appears meaningless for him."

He reviews the obstacles to the epidemiological study of mental disorders, which include errors in diagnosis, lack of suitable criteria of recovery, and the inability to determine when a given mental illness began or the exact degree of pathology.

Dunham also summarizes four hypotheses that attempt to interpret the rate differential for schizophrenia:

1. That personality inadequacies or psychotic proneness of persons causes them to drift into certain social classes, subcultures, or community settings. (Drift hypothesis)
2. That visibility of and tolerance for mental disorder varies with the attitudinal structure of different types of communities, social classes, and subcultures.
3. That some social and psychological needs are conducive to the breaking of social ties. (Reverse of drift hypothesis)
4. That as the size of the city decreases, rate differentials between socioeconomic areas tend to disappear.

Dunham concludes that the anomic theory is hardly sufficient to reveal the dynamics by which the socio-cultural elements of social structure can produce deviant behavior.

Lindesmith and Gagnon make a critical review of studies of drug addiction and the double-failure hypothesis, a modification of the anomic theory, by Clinard and Ohlin. According to the double-failure hypothesis, many addicts are unable to achieve success by either legitimate or illegitimate means. Lindesmith and Gagnon conclude that the anomic theory does not account satisfactorily for many of the major behavioral aspects of drug use or addiction.

Snyder discusses studies of the relation of anomie to inebriety and alcoholism and concludes that this approach "promises to be fruitful" but suggests that it is premature to pass judgment on the importance of specific sources of anomie. Stephen Cole and Harriet Zuckerman conclude the volume with an inventory, in tabular form, of empirical studies and an annotated bibliography of theoretical studies of anomie.

As Lindesmith and Gagnon indicate, the anomic theory was one of a number of theories of deviant behavior developed in opposition to biologically and psychoanalytically oriented positions. Dunham also expresses a current attitude:

"The sociologist is likely to argue that psychiatric training is not sufficiently broad to include knowledge about how socio-cultural environments condition and influence human behavior. Therefore, the psychiatrist can hardly get at this aspect of human experience when he examines a given case."

Conversely, one taking a narrow clinical viewpoint might invidiously appraise the anomic theory as too broad, all-inclusive, ethereal, metaphysical, and meaningless in terms of psychodynamics. Nevertheless, there are many indications that sociology, psychology, and psychiatry are rapidly moving into closer cooperation in areas of mutual interest despite their many differences in terminology, conflicting theories, and widely separated operational techniques.

This is a critical, carefully written and annotated review of recent sociologic theory and research in varieties of deviant behavior. A careful reading of this volume should be valuable to clinicians who are not fully familiar with modern trends in sociology.

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Marmor, Judd, *Sexual Inversion*, New York: Basic Books, 1965, pp. 342.

From the point of view of the editor, the purpose of this book of original contributions is to present to the reader the "multiple roots of homosexuality" as evidenced by data gathered from the social, behavioral, biological, etc., sciences. Dr. Marmor, Clinical Professor of Psychiatry at U.C.L.A. Medical School and Chief of the Division of Psychiatry of Cedars-Sinai Medical Center and a practicing psychoanalyst, has, within the limits imposed in any one volume, approached that goal. An interdisciplinary orientation is attempted in the organization of the volume. It is divided into three sections preceded by an introductory chapter by the editor. The three sections that follow examine homosexuality from the viewpoint of biology, the social sciences, and the clinician.

The editor's interest seems clear at this point since fully one half of this work is devoted to the eight psychiatrists whose chapters concern themselves with the psychopathology and treatment of homosexuality.

Professor Marmor's introductory chapter deals with the problem of defining homosexuality; reviews selected works regarding biological, social cultural determinants. He examines the question of homosexuality as an illness, and as a personality problem. In this chapter the author provides a broad based, well written and highly informative introduction to his book that might well stand alone as a scholarly review of the study of homosexuality.

Part I, the view of the biological sciences, contained three chapters by R. H. Denniston, William Perloff and C. N. B. Pare. They conclude, after thorough reviews of the relevant literature, that 1) homosexual behavior occurs frequently among lower animals and has predominantly social rather than hormonal or structural determinants; 2) in man, homosexuality is a psychological phenomenon neither determined nor influenced by endocrine factors. Dr. Pare adds that the genetic basis of homosexuality is uncertain. Much of the positive evidence that he bases a possible chromosomal factor in homosexuality is taken from Kallmann's work. He passes lightly over the many criticisms of these investigations, but fortunately these criticisms are nicely dealt with in Marmor's chapter.

Pare effectively eliminates much speculation about genetic mechanisms, and concludes that whatever part genetic factors may play, environmental factors also play an important role.

The second section deals with the social science view of homosexuality.

Evelyn Hooker's chapter, "Male Homosexuals and Their 'Worlds'" reflect her many years of research into the problem of homosexuality. Dr. Hooker's major contribution and a most significant one, lies in her unique approach and her even more unique sample. Her method of gathering data might best be described as a psycho-social-ecological approach. This consists of extended contacts with research subjects both in her office and in their natural environs. She has thus meaningfully synthesized the study of the individual homosexual and the study of his "community." Dr. Hooker's sample is unique in that it is composed of relatively well-functioning male homosexuals. That is, she has excluded persons seeking or requiring any kind of psychotherapeutic treatment. She reports that based on a study using three expert judges doing blind analysis of projective tests that "... many of the homosexuals were very well adjusted. In fact the three judges agreed on two thirds of the group as being average to superior in adjustment." This conclusion is disputed by all of the clinicians in the book, but as Marmor points out in his introduction, "The concepts of psychoanalysts are all derived from the study of homosexuals who have sought psychoanalytic therapy or else have been referred because of external difficulties." He continues, "A strong possibility exists that traditional psychoanalytical defences of homosexuals are based on a skew sampling of homosexuals and may not accurately represent the spectrum of personalities present in the total homosexual population."

Thomas S. Szasz, in his concise, blunt, style, offers a strong polemic against moral condemnation, masquerading as legal sanctions, and against the labeling of homosexuality as a disease by psychiatrists in an attempt to circumvent the moral, political and social ramifications of the problem.

The other chapters include a cross cultural examination of homosexuality and an historical and mythological examination offering a literary flavor to the volume.

The second half of this book is devoted to a clinical examination of homosexuality. The section is keynoted by the inclusion of Sandor Rado's classic article, *A Critical Examination of the Concept of Bisexuality*. It is a tribute to Rado that a twenty five year old work was selected for publication in a modern volume featuring otherwise original contributions.

Robert J. Stoller writing on "Gender Identity" presents some fascinating and important research regarding transsexuals, transvestites and cross-sexual identity. He offers a fresh approach utilizing psychological, sociological and biological concepts. Although Dr. Stoller points out that cross-sexual identification does not necessarily denote homosexuality, the relevance of this view to the problem of homosexuality is inescapably evident. Although the content of this chapter is of limited scope, the bibliography will provide the reader with an impressive review of literature of sexual pathology and identity.

Leon Salzman's chapter, "*Latent*" Homosexuality is a much welcomed addition to this book. He suggests that the concept of latent homosexuality may have originally played a useful role in the development of personality theory, but at the present time it has outlived its usefulness. Dr. Salzman concludes that "Because the term homosexuality carries such derogatory connotations and its application to an individual subjects him to serious social and occupational difficulties, it should be reserved for definite instances in which its presence is undoubted. The looseness of the term latent homosexuality and its abuse by professionals as well as by laymen demands that the validity of the concept be definitely demonstrated or the term completely abandoned."

Lionel Ovesey's chapter attempts to differentiate what he calls "pseudo-homosexuality" in men with their root in power and dependency conflicts from "true" homosexuality which is rooted in fear of heterosexual behavior. Dr. Ovesey suggests that by understanding this difference, the clinicians can often help the patient assume a heterosexual orientation.

Irving Bieber's chapter describes the parental psychopathology that leads to homosexuality. His conclusions, that the male-father is feared and hated and the woman-mother is loved, but avoided, is not only at variance with a predominant psychoanalytic view as Dr. Bieber points out, but is a difficult conclusion to reach from an examination of his

data (Bieber, et al, 1962). The major contribution of this chapter is his favorable view of prognosis in treatment.

Peter Mayerson and Harold Lief present a follow-up study of nineteen male and female homosexuals following psychotherapeutic treatment. Much research in many years has shown that outcome studies are subject to many confounding influences, and the present study is no exception.

The two chapters dealing with female homosexuality are written by Cornelius Wilber and May Romm respectively. The chapters serve up much of the same cliché ridden statements concerning dynamics found in some of the other psychoanalytically oriented chapters. Oedipus complexes, castration anxieties and explanations of what is really meant by penis envy fill much of these pages. On the brighter side, Dr. Wilber presents a brief, but comprehensive review of the etiological formulations in regard to female homosexuality. Dr. Romm's important contribution is in her discussion of treatment where she focuses on the adaptive components of the healthy part of the ego, and in her case illustration which reflect Dr. Romm's strong orientations toward the treatment of homosexuals as persons with problems and not merely diagnostic categories.

In summary, it seems that the reader, whatever his level of expertise in the area of homosexual theory and research, would find something worthwhile to be gleaned from this volume.

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REFERENCES

- Bieber, I., Dain, H. J., Dince, P.R., Drellich, M. G., Grand, H. G., Gundlach, R. H., Kremer, Malvina, W., Rifkin, A. H., Wilbur, Cornelia B., and Bieber, Tony B. *Homosexuality*. New York: Basic Books, 1962.

Eisegesis and Assessment

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Summary: This paper presented a series of studies relating eisegesis and assessment. A method was described for isolating eisegesis in psychological reports which used the reliably categorized contents of criterion test reports. Concepts in student and criterion reports were reliably matched for an index of agreement or "skill." Concepts in student reports which did not appear in criterion reports were labeled additions. These additional concepts were progressively refined in terms of uniqueness, relevance to test data, and intra-subject frequency. The residual concepts were used for a description of student eisegesis. Student reports, from two training programs, differed in emphasis upon description or psychodynamics. Eisegesis was more apparent where psychodynamics were contained in reports. Problems of reliability, validity, ethics, and training were discussed.

The clinical psychologist no longer values his role in assessment. Assessment has become a nomothetic process in which predictions are generated directly from test data rather than from a psychological report. The issue is no longer one of actuarial versus human use of test data: it has its origins in the conceptualization of clinician as scientist. The consequences are reflected in reduced professional time for psychological testing and sharply diminished status for those who devote themselves to assessment. University graduate programs tend to devalue training in assessment (McCully, 1965). These concerns have been discussed previously as two specific threats: (a) the clinician's probable future as a data collector and computer feeder; (b) a withdrawal of research attention from the person as the clinical instrument (Dana, 1963).

A recent symposium which was concerned with the psychological report, strongly suggested that we are in trouble (Dana, Klopfer, Love, Noll, & Siple, 1964). Siple suggested that assessment is not being reinforced because psychological reports do not contain meaningful answers to relevant questions. Leonore Love emphasized that report writing is "sandwiched" between other training devices with an emphasis on prediction. Noll affirmed that students are not

misled by the ritual of report writing itself; increasingly they recognize an imposed task which is alien to clinical practice. On the positive side, Klopfer believes that clinical psychologists may use their total skills more adequately in report writing than in any other activity. This unique role is a product of theoretical and research orientations. In addition, supervision in report writing is a kind of psychotherapy, a mild and sharply focused process of relating test inferences to their sources in the psychodiagnostician's "cognitive house".

This paper describes a research process and a training device in order to provide a context for discussing the clinician's training in assessment. Training involves a blend of technique and skill in interpretation. Clinical skill is hampered and facilitated by the clinician's personality, his personal equation. Traditionally, supervision has been used to separate skill from eisegesis or projection. Literally, eisegesis means "faulty interpretation of a text . . . by reading into it one's own ideas (Webster, 1957)". As early as 1942, Macfarlane clearly indicated the effects of eisegesis:

"Interpretation in the hands of the clinically inexperienced, the doctrinaire, or the methodologically uninformed easily degenerates into nothing more but one more predictive tool-to-wit, one

which discloses the organizing dynamics of the interpreter rather than the organizing dynamics of the research subject (p. 405)."

Eisegesis can be studied in at least four ways: (a) The clinician can be encouraged as part of training to enter a personal psychotherapy process. While necessary for clinical practice on other grounds, personal psychotherapy is long term in nature and diffuse in its effects. (b) Clinicians can be asked to label and describe their own eisegesis. However, bias from one's own psychodynamics may be neither accessible nor reportable even if conscious. (c) The Rorschach or other projective techniques may be administered as part of training. The circumstances of such administration encourage caution and other response sets. Sources of psychodynamic bias may either not show up nor necessarily be recognized if they do appear. Projective techniques, like psychotherapy, reveal more than they obscure, but any isomorphism between such results and eisegesis would be happenstance and not design. (d) The student's own psychological reports can be discussed with him in terms of eisegesis, more reports requested, and the supervisory process repeated (See Blatt, 1963, for examples). However, a student's own reports may reveal only eisegesis that is blatant and not obscured by stylistic variables. Even when a half dozen reports by different students on the same test data are read to an assessment class, the similarities often mask the eisegesis.

Previous studies of examiner personality have employed designs which do not clearly focus on eisegesis. A review may be found elsewhere (Dana, in press). Three studies are reported here.¹ Study I uses Murray needs as a basis for comparing subjects' TAT stories, student reports of the TAT records, and student personality. One

of five case studies is included as an example of the descriptive power of an inefficient and cumbersome methodology. Study II employs only the student's psychological reports and compares them directly with criterion reports prepared in clinical practice. Study III compares the reports by students in two different programs in order to identify some institution or instructor variables which may affect eisegesis.

STUDY I

Method

Eight TAT stories were available from each of 40 high school counselors as part of a summer NDEA Counseling and Guidance Institute pre-test battery (Dana, 1965b). A one-half page analysis was written for each set of stories by five doctoral candidates in clinical psychology and counseling.² Using the definitions from the Edwards Personal Preference Schedule (EPPS), three undergraduate psychology majors independently scored each of the TAT stories and their analyses.³ Two scoring methods were used, tally and presence-absence of needs. Reliability coefficients were calculated for each pair of scorers on each need with both scoring methods. Overall reliability was significant ($p < .01$) for combined data from the highest pair of scorers for each need and each scoring method.

Three EPPS subject measures were used: (a) EPPS; (b) self-ratings of EPPS needs on a nine-point rating scale; (c) mean of nine staff ratings on EPPS needs on the nine-point scale. Rank-difference intercorrelations among these three EPPS subject measures were significant; (a vs b = .60; a vs c = .67; b vs c = .74); the

² Although these subjects are deliberately anonymous due to the nature of the data, their contribution is gratefully acknowledged. Permission was obtained, post-Ph.D., for publication of the analysis contained herein.

³ Acknowledgment is made to Juanita Hoover, Marilyn Munchmeyer, and Mary Ann Savage.

¹ Portions of Studies I and II were reported at the Calif. Psychol. Assn. meetings in 1962 and 1963.

lowest correlation, or greatest disagreement, occurred between the two measures completed by the subject, the self-rating and the EPPS.

From these subject measures three discrepancy scores were obtained: (a) self-rating vs. EPPS; (b) staff ratings vs. EPPS; and (c) staff ratings vs. self-ratings. In addition, the 15 needs were ranked by the subject in terms of perceived conflict over their fulfillment.

Results

The pattern of needs for the high school counselors as expressed in their TAT stories conforms to expectations. The highest four needs in frequency of occurrence were Achievement, Succorance, Nurturance, and Intracception. The counselors are trying to do their best, willing to be helped, interested in helping others, and persons who internalize experience.

Dramatic shifts occur in the ranks of needs as expressed in TAT stories and their analyses by one clinician. Succorance remains among the first four needs. Deference, Autonomy, and Heterosexuality are now present. In the analyses, following instructions, independence, and interest in the opposite sex are salient. Aggression and Dominance assume increased importance. Concomitantly, Abasement, or a guilt component of internalization, is markedly less prominent in the rankings. The low ranking needs, Affiliation, Change, Order, and Exhibition maintain similar positions in both the TAT stories and their analyses.

In order to evaluate these discrepancies between TAT stories and their analyses, it is pertinent to know that the TAT analyst has had training in counseling and guidance and currently experiences a chronic conflict between career and family. Data from the four EPPS measures are relevant here: the similarities are striking. First, her seven highest ranked perceived conflict areas are Heterosexuality, Achievement, Nurturance, Suc-

corance, Endurance, Autonomy, and Change. These are areas that would be hypothesized for a career vs. family conflict. They are also three of the four most frequent needs erroneously attributed to the TAT stories of high school counselors. The fourth need attributed to high school counselors, Deference, may be a response set stemming from the imposed task of writing TAT analyses. While the self-ratings and EPPS scores are significantly correlated with the TAT stories, relationships with the TAT analyses are only modest. The discrepancy rankings are unrelated to the stories, the analyses, or to each other. The perceived conflict rankings, however, are significantly related to both stories and analyses.

A second line of evidence comes from the three sets of unrelated discrepancy ratings. The most highly discrepant need in both the self-rating vs. EPPS and the staff ratings vs. self-ratings is Aggression. Similarly, the staff perceives the subject as strongly motivated by Exhibition. It may be inferred that the subject is either unaware or does not admit Aggression and Exhibition needs to herself or to other persons. By the same token, Autonomy and Change vie for second and third most discrepant needs in self-ratings vs. EPPS and in staff ratings vs. EPPS. She is perceived as more independent and novelty-seeking than she knows.

This interweaving of significant statistical relationships and inferences from known background information suggests the extent of eisegesis in this subject's TAT analyses. Her own need hierarchy bears strong resemblance to the abstraction of the high school counselors whose individual TAT stories she analysed. However, she rejects the role of high school counselor for herself. Unknowingly, she minimizes her clinical perceptions of their Achievement, Nurturance, and Intracception needs as a result. The core conflict of her own life, career vs. marriage, blatantly extrudes Heterosexuality into the TAT analyses. The

high school counselors are endowed with strong needs for Aggression and Dominance which are not perceived in her own need repertoire. She is undoubtedly concerned with playing the "good" graduate student, with following directions; hence the high school counselors are always perceived in terms of high Deference. It should be emphasized that the subject was a capable, well-functioning Ph.D. candidate in Clinical Psychology.

Discussion

The use of EPPS as a source of needs has several drawbacks. A limited range of needs is sampled in terms of the population of possible needs and those which may be salient for any one individual. The paired comparisons construction accentuates or minimizes the strength of any one need. In addition, the level of abstraction is high for both predictor and criterion data.

The TAT story and analysis scores for the 15 needs are marginally reliable. A 1% level of confidence for scorer reliability suggests ambiguity in the definitions, inadequate training of scorers, or both. The Spearman rank-order correlation is a statistic of low power and is about 10 per cent less efficient than a Pearson correlation (Hotelling & Pabst, 1936).

In view of these limitations, any results at all are remarkable. What Rychlak has called procedural evidence, or "intelligibility, consistency with common sense, or implicit self-evidence" (1959, p. 645), has been combined with more traditional validating evidence from the statistics employed. Inferences were made sparingly and only from correspondences in both the procedural and validating evidence.

STUDY II

This study compares student reports with criterion reports written by one clinician from the same test data. *Agreements* with the criterion and *additions* to the criterion are analysed. The agreements represent

one aspect of skill. The additional concepts are defined as eisegesis only after they are reduced in number by a series of "filters". Criterion reports were read independently by two judges and their content was broken down into concepts which could be reliably identified. Inter-judge agreement of 90% minimized distortion in selection and description of concepts.

Thirteen graduate students wrote 61 reports from the test battery data. Each student wrote a minimum of four reports in a context which included reading their report and the criterion report to the entire class. The students were trained by the author who was also responsible for the criterion reports. Study III was thus mandatory for control of the training variable. Two scorers independently compared the concepts present in student and criterion reports. The directions were to "score for substantial agreement in content, regardless of specific words, and to list other separate ideas which are not included in scoring criteria".

Eisegesis in the criterion reports was investigated by isolating those concepts in the criterion reports which occurred infrequently in student reports. A frequency definition of one sigma below the mean was used. There were 14 concepts from six reports. No concept was repeated and all appeared to be specific reconstructions of psychodynamics or indicative of diagnosis and symptomatology.

The comparison of student and criterion reports suggested that the seven sets of test battery data were of unequal difficulty (Range of agreements: 52% to 73%; mean — 58%). Students did not appreciably change their percent of agreement, or accuracy, as a function of practice. Individual differences in student accuracy ranged from 46% to 76%.

The number of concepts added to those present in the criterion reports were analysed separately. No student's concept was included unless there was

absolute agreement between scorers that it was present. Additions listed by one scorer only were not used due to an unknown confounding effect of the scorer's own personality. Three distinctions between eisegesis and skill were made: (a) *Uniqueness* in own reports. Is x reported only once or do other students also report it? (b) *Relevance* to test battery data. Is x, a uniquely reported concept, relevant? (c) *Frequency* in own reports. Is x perceived regardless of the test data stimulus? This is determined by judgment and serves to further reduce the number of additional concepts representing eisegesis.

Eisegesis was examined in the 188 additions on which scorer agreement was unanimous, with an average of 14.5 per student and 26.9 per set of test data. After analysis for uniqueness in which additions present in more than one student report were removed, 139 additions, with an average of 10.7 per examiner, remained. There were 24 concepts relevant to the test battery data and these were removed. These concepts were typically highly specific; e.g., "paranoid trend", "hysteric", "stealing reinforced by parents", "acts sick to get attention and sympathy". The remaining 115 concepts were examined for frequency of occurrence in two or more of the same student's reports. This analysis yielded 15 concepts, or 30 additions, accounting for 26% of the remaining concepts. After these analyses, 115 concepts, or an average of 8.8 per student, remained (Range 1-14). Eisegesis concepts and accuracy scores were uncorrelated; eisegesis and skill are disparate for this sample. Brief psychodynamic sketches were written about each student by simply associating these concepts without inference.

Finally, five interpretations of students' Rorschachs were done independently of the study. Blind matchings of Rorschach and eisegesis sketches were successfully accomplished. While the data contained in these two sets of

sketches were not identical, the information was complementary. This highlights the obvious fact that only selected personality characteristics interfere with professional activity.

STUDY III

Comparisons for accuracy were made on three reports for students in two Ph.D. programs, 10 in sample X and 15 in sample Y.⁴ There was a large difference between groups in mean agreement with the criterion reports: 59% and 39%, respectively, with the higher figure representing those students from Study II. More specifically, there were differences in the concepts chosen for inclusion or omission in the two samples. Those criterion concepts which were left out of reports from students in sample Y were:

- "possessions take the place of love"
- "narcissistic-makes and justifies own rules in his uniqueness"
- "not dangerous-ideational processes channel behavior in 'right' direction for wrong reasons so that reality becomes basis for action"
- "realizes his world different from others but considers them wrong"
- "loses control and wants to hurt before he is hurt (especially in regard to mother)"

These concepts have one quality in common: they refer to hypothesized psychodynamics. Only one of these concepts, the "narcissism" referent, was not included frequently in sample X.

Eleven or more of sample Y students concur in the following concepts:

- "intelligence superior"
- "distrust of adults and expectations of conflict with people"
- "average human being"
- "incites punitive action thus forcing others to control his behavior"
- "intellectual defenses-rationalization, projection, fantasy, denial, reaction formation"

⁴Dr. Carl Sippelle was kind enough to provide the data which made these comparisons possible.

With one exception, these are descriptive statements. Reports from Y students were more descriptive and less concerned with postulated explanatory psychodynamics. This represents a difference between instructors or values of the institutional training program.

When the additional concepts were tallied, approximately equivalent numbers occurred. Students from programs X and Y agree on 32 additional concepts from totals of 74 and 68, respectively. The content of these between-sample agreements represents a way of defining "skill" without recourse to the criterion reports. For example, the combined samples contain 10 instances of "difficulty in sex-role identification-fear of opposite sex" and 8 instances each of "does not know how to relate to others", and "unable to identify". These are clear differences in what is deemed important by students in both samples and the criterion report writer.

Eisegesis, for the Y sample of 15 students, was based on four reports. Comparisons were made with 14 sample X students for these same reports. The X students produced more eisegesis concepts (75 vs. 55, with means of 5.4 and 3.7). Clearly, when psychological reports are primarily descriptive in nature, the opportunity for eisegesis is minimized. Eisegesis, when present in psychological reports, is at least partly due to the kind and intensity of training received by the students. Where personality dynamics are emphasized, students are more able to invest their own personal problems in the reports they produce.

Discussion

There are several methodological problems involving reliability and validity. Reliability is adequate for selection of criterion concepts, the matching of concepts between student and criterion reports, and for scoring additional concepts in student reports. However, each of the steps used to reduce the number of concepts re-

maining in student reports requires reliability checks. Concepts appearing in more than one report can be reliably identified. However, the judgment of relevance to test battery data is not a clerical process. Furthermore, the organization of those remaining concepts into a statement about the student's psychodynamics provides an opportunity for adding data that may not be present in the list of residual concepts.

Questions of sample size and object sampling are relevant. The sample of criterion reports by presumably skilled clinicians needs to be increased. Without reports based on the same test data and representing several levels of experience, the eisegesis present in criterion reports is masked. These data suggest that a minimum of four reports may reveal student eisegesis. However, eisegesis is most likely to be present when psychodynamic content is emphasized.

The use of standard test data gathered by one clinician deprives the student of the interpersonal context which is only suggested by a paragraph describing test behavior. An ideal design would incorporate larger samples of clinicians and students representing several clearly defined degrees of experience. The samples of test battery data should be supplemented by films of test behavior. Clinicians and students should prepare reports during the same time period.

There are at least three approaches to validation. The psychodynamic sketches may be matched with student subjects. This was attempted by the Director of the Clinical Training Program (Study II) who frankly acknowledged that he did not know the students well enough. However, matchings were correct in those few instances where student psychodynamics were confidently known. There are undoubtedly some clinical programs that deem such knowledge of students vital to training.

Reports based on the student's own Rorschach records may be compared with the psychodynamic sketches. An advantage here is that sketches and reports can be prepared independently by different clinicians. Matching can be performed by clinicians who have no information about the students or their training program.

Third, since the process is inevitably identified with training, the psychodynamic sketches can be discussed individually with the students. Another sample of student reports can be prepared and reanalysed. The effectiveness of the process would be indicated by acceptance or rejection of the descriptive concepts, affectual involvement, and the contents of another sample of subsequent reports.

Ethical considerations enter into the conduct of this research. The identity of the students should be protected. The subjects should be informed of their own eisegesis unless there are specific mitigating circumstances. Methodology and general results have to be reported to the profession as a stimulus to a variety of other approaches. And finally the validity of the method should be investigated before any general usage for training is attempted.

CONCLUSIONS

As a profession we have long been aware that increasing the gap between data and inference augments the likelihood of bias. As individuals training other individuals we have used personal techniques analogous to those employed in psychotherapy. The effects of these methods upon training, professional identification and deportment, are unknown. More standardized methods are imperative and we must study ourselves as we study our students. Perhaps the salient novelty of the present approach is the use of a report prepared by a skilled clinician as a standard for comparison. Too many of us for too long have been guilty of spending much less time in supervision than the student

does in collecting the test data or preparing the report.

In other contexts, I have discussed the problems faced by clinical students in learning assessment procedures (Dana, 1965a; Dana, in press, Chap. 15). Assessment as a process is rigorously isolated from the content of academic psychology. Students do not enter assessment courses and practice with a frame-of-reference which is their own and fits them comfortably. The research findings in disparate areas have not coalesced into any set of principles which become salient in one person—the client who is recreated and interpreted by a psychological report.

We literally ask the student to unlearn what he has assimilated heretofore and to present a *tabula rasa* for incorporation of projective techniques. Where we have previously required caution, closeness to data and operational validity, we now extol free use of fantasy. It is no wonder that the student reacts emotionally to this change of pace. And in this free use of fantasy which becomes a psychological report, we may find the student as well as his client. Out of this chaos and the student's anxiety, we fashion for him some controls over his fantasy. And if we succeed, we have a student who can write reasonably straightforward and relevant psychological reports.

Before we can train our students to be specialists in assessment, there must be a decision as to the purpose for assessment. If our future professional diagnostic goals are a series of discrete predictions with certain built-in probabilities attached to them, then we can abandon our current teaching practices entirely. However, we can also decide to help the student discover and enter the phenomenological world of his client. Such understanding requires a vehicle for communication—the psychological report. It also requires that the subject be able to evaluate from a frame-of-reference

that emerges from academic psychological training.

REFERENCES

- Blatt, S. J. The objective and subjective modes: some considerations in the teaching of clinical skills. *J. proj. Tech.*, 1963, 27, 151-157.
- Dana, R. H. Foundations of clinical psychology: Problems of personality and adjustment. Princeton: D. Van Nostrand, in press.
- Dana, R. H. The clinical psychologist: a generalist with specialist training. Unpublished mss., University of Wyoming, 1965 (a).
- Dana, R. H. An NDEA Counseling and Guidance Institute: prediction, performance, and follow-up. *Genet. Psychol. Monogr.*, 1965, 72, 289-315. (b)
- Dana, R. H. Clinical skills: obsolete or neonate? *J. proj. Tech.*, 1963, 27, 423-430.
- Dana, R. H., Klopfer, W. G., Love, Leonore, R., Noll, J. O., & Siple, H. L. The psychological report as a training device. *Amer. Psychologist*, 1964, 19, 714.
- Hotelling, H., & Pabst, Margaret R. Rank correlation and tests of significance involving no assumption of normality. *Ann. Math. Statist.*, 1936, 7, 29-43.
- Macfarlane, Jean W. Problems of validation inherent in projective methods. *Amer. J. Orthopsychiat.*, 1942, 12, 405-410.
- McCully, R. S. Current attitudes about projective techniques in APA approved internship training centers. *J. proj. Tech. & Pers. Assess.*, 1965, 29, 271-280.
- Rychlak, J. F. Clinical psychology and the nature of evidence. *Amer. Psychologist*, 1959, 14, 642-648.
- Webster's New World Dictionary*. New York: World Book Co., 1957.
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- Received October 16, 1965
Revision received February 18, 1966

Reliability: Paradigm or Paradox, with Especial Reference to Personality Tests

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Summary: Conventional reliability theory is inapplicable to many domains, including personality and projective tests. Repeat reliability, or temporal stability, is a matter to be investigated, not assumed; it is obvious that measures of some personality characteristics, e.g., mood, if temporally stable cannot be valid. As for internal consistency, classical mental test theory holds that an unreliable test cannot be valid. It is demonstrated mathematically that the maximum validity of a test with zero internal consistency (reliability) is one. The supposed limitation of validity follows only from the assumption of a random error component, uncorrelated with anything, to test scores. This often useful assumption leads us astray. A physical example is given as well as that of projective tests. Some consideration is given to the nature of these measurements. The largest validity squared is a conservative reliability estimate from classical test theory which may be used without being hurt by the theory's inappropriateness, if one insists on a reliability estimate. However, it is preferable to simply present the validity coefficients.

A supposed lack of reliability is often pointed out as demonstrating the scientific inadequacy of projective tests, or other personality tests. This argument derives from the inappropriate but widely embraced psychometric theory of reliability, which holds that low reliability implies low validity, as illustrated by the following comment about a questionnaire personality test:

"A small number of items were carefully composed to embody this concept, but, when we tried them out, we found that they had correlations of zero with each other. Since it follows mathematically that with zero reliability we could not have any validity, we abandoned this line of research."

The speaker was a competent researcher in the field of personality and child development. His conclusion was readily accepted by the group of psychologists to whom he spoke. But it can be readily demonstrated mathematically that no limitation on validity necessarily follows from zero inter-item correlations. This proof is given below, as well as some of its implications for personality tests.

Of course, internal consistency is not the only operational meaning of reliability. Consistency over time is the

alternative empirical measure of reliability. But such repeat reliability, that is, temporal consistency, is relevant only if the characteristic being measured does not fluctuate with time. Many of the characteristics which personality tests, or projective techniques, are intended to measure are motivational or emotional, and there is no reason to assume that these characteristics are temporally stable. On the contrary, it is clear for some motives that a temporally stable measure must be invalid. Thus, a measure of hunger, or of mood, which never fluctuated, could not possibly be measuring the appropriate variable. For most personality variables, it is an empirical question, which will be answered by appropriate measuring instruments, to what extent they are temporally stable or unstable, and what temporal patterning there may be to the changes, such as the cyclical variation one would expect with hunger. Thus, temporal stability or regularity must be investigated rather than assumed.

Temporal consistency, consequently, cannot be a criterion of the measuring instrument unless it is already known (as is rarely the case) that the characteristic being measured is itself temporally stable.

This is not a new argument, and its implications are usually held to be that repeat reliability is conservative (too low) as a result of changes in the trait measured, and that internal consistency is a more accurate index of reliability. Moreover, internal consistency is generally easier to obtain, and hence is frequently the only measure of reliability reported. It is often assumed that internal consistency must be higher than temporal consistency, a conclusion which is as false as the assumption that internal consistency limits validity. One need only substitute the score on a later administration of the test in place of criterion measure in the mathematical argument below, and it immediately follows that there is no necessary relationship between these two types of reliability.

At this point, it is worthwhile to present the simple mathematical argument which rigorously demonstrates that low internal consistency does not limit validity. It is only necessary to define a test with the lowest possible internal consistency, that is, zero, and investigate what validity is possible. Classical reliability theory would hold that the maximum validity attainable in such a case is also zero. (The non-mathematical reader may prefer to skip at this point to the 'Implications.')

MATHEMATICAL ARGUMENT

To investigate the consequences of zero internal consistency, define a score S_i , the score of individual i , as a function of a set of elements (for example, the sum of his scores on a set of items):

$$S_i = f(a_{i1}, a_{i2}, \dots, a_{i11}, \dots, a_{in1}) \quad (1)$$

where f is some function, for example, the sum; and a_{ji} is a component element, for example, the score of individual i on item j .

Now add the condition of zero inter-item reliability, that is, that each item has no correlation with any other item:

$$r_{a_j a_k} = 0, \text{ for all } j \neq k \quad (2)$$

where $r_{a_j a_k}$ is the correlation between item j and item k .

Finally, define a criterion value C_i for each individual i . In order to explore what is possible, one may arbitrarily define a criterion value, C_i , which is itself a function of a set of component elements, as follows:

$$C_i = g(A_{i1}, A_{i2}, \dots, A_{i11}, \dots, A_{in1}) \quad (3)$$

where g is some function, and A_{ji} is an element of the criterion.

At this point the maximum possible value of the validity coefficient r_{sc} , that is, the maximum possible correlation between S and C , given zero inter-item correlation, may be readily determined. If $f(x)$ should happen to be the same function as $g(x)$, and if each a_{ji} should happen to correspond exactly to a corresponding A_{ji} , then the correlation r_{sc} will equal unity. Indeed, S and C will be identical. Stated as equations,

$$\text{If } f(x) = g(x) \quad (4)$$

$$a_{ji} = A_{ji}, \text{ for all values of } j \text{ and } j \quad (5)$$

$$n = m \quad (6)$$

$$\text{then } S_i = C_i \quad (7)$$

$$\text{and, trivially, } r_{sc} = 1 \quad (8)$$

IMPLICATIONS

Obviously, zero inter-item reliability implies *no* upper limit to validity, without further assumptions. Where then did the idea originate that reliability limits validity?

From classical test theory (e.g., Gulliksen, 1950, pp. 4-38), which divides the variance of test scores into two components, true score and error, and defines error as being uncorrelated with anything. If that assumption were true, then reliability would indeed limit validity. That human performances contain such error, uncorrelated with anything, is ungenial to much of personality theory (e.g., Freud, 1949), but it has useful implications. In particular, many equations in test theory become much simpler. In many domains, particularly intelligence testing, these equations

have proved useful. Even the concept of reliability limiting validity has proved useful; test constructors despite imperfect criteria have in many instances been able to raise all validity coefficients by increasing reliability, just as predicted by classical test theory.

Why then abandon an assumption, which, if not absolutely accurate, is sufficiently so for all practical purposes? Even if, in the abstract, validities in excess of reliability are mathematically possible, are they ever, in fact, possible in psychology? Obviously, they are, or this paper would never have been written.

It may be instructive to take an example from physics. A "clinical" physicist decides he is interested in one characteristic of a number of objects. He terms this characteristic V. After looking at these objects, he decides that a characteristic A has something to do with V and would make a good item. He also decides that two other characteristics, B and C, have something to do with V. He then measures A, B, and C on a number of objects. He asks the advice of one psychometrician who says to him, "What is the reliability of your test?" The physicist then computes the correlations between each of his items and finds that $r_{AB} = 0$, $r_{BC} = 0$, and $r_{AC} = 0$. (9) He is then advised that he has a terrible test, which he ought to abandon.

But our "clinical" physicist is unhappy with such advice. It conflicts with his experience, so he goes to another psychometrician. This fellow says, "The devil with reliability. Run your validity, and then we'll talk." The physicist does this and finds that the correlation between V and the sum of A, B, and C is actually extraordinarily large. When the new psychometrician points out that many variables in psychology have simpler relationships when transformed to logs, the physicist tries transforming all his variables to logarithms, and then finds the correlation is now 1.00 between log V and the sum of log A,

log B, and log C, since V was the amount of water that could be stored in rectangular containers, and variables A, B, and C were the length, width, and height of the containers.¹

But what does this physical example have to do with psychology? In the area of personality, particularly projective tests, one regularly encounters similar phenomena. The correlation between a variable measured on one card, let us say, of a TAT is apt to be low when compared with the same variable measured on another card.

What accounts for the low correlation between cards on the TAT is this. Personality characteristics are, for the most part, abstractions for some purpose, to a large extent arbitrarily defined (Karon, 1958, pp. 55-59). Thus, for example, it is for many purposes useful to speak of "aggression," yet it is also clear that for differing people verbal aggression, physical aggression, and thought aggression are handled similarly, inversely, or independently; for differing individuals aggression to superiors and inferiors, to family and to strangers, etc., may or may not be handled similarly.

(Much of the confusion about the validity studies of the Rozensweig Picture Frustration Study may be readily resolved, when you realize that it only directly measures the handling of verbal aggression, "What does he say?" and that the relationship between the handling of verbal aggression and the handling of thought aggression and of physical aggression is not the same in all people. Thought aggression is, on the whole, more closely related to verbal aggression than the handling of physical aggression.)

¹One psychologist, on reading a draft of this paper, has argued that volume is a derived measurement, and hence "not the kind of measurement we need in psychology," while length, width, and height are "fundamental" measurements. Weight, however, is a fundamental measurement, and the same relationship holds between weight and length, width, and height, inasmuch as weight is simply volume multiplied by a constant for the particular substance.

It is clear that for some purposes it is essential to distinguish the sub-types of aggression. It is also clear that psychoanalysis would never have learned what it has about displacement and other techniques of handling aggression if it were necessary to exactly specify the sub-type every time one talked about aggression. Moreover, the distinctions that could be made are limited only by human ingenuity. Thus, what distinctions one makes are dependent on one's purpose.

Whatever the final delimitation of the concept to be used, it will almost always include uncorrelated components.

What is measured on a particular card, say, on the TAT, is the reaction to a particular situation. Whether this is positively related, negatively related, or independent of another situation is a matter that usually differs from person to person.² There is thus no reason to assume that the components of meaningful personality constructs are necessarily positively correlated with each other, or that the components of tests that measure these constructs are necessarily correlated with each other. Indeed, valid measures of constructs which include uncorrelated components (as do most personality variables) will tend to derive from tests which similarly include uncorrelated items.³

² There are, in addition, systematic if peculiar, effects: For example, there is a see-saw effect whereby, if a variable is high on one card, it will be low on the next, and high on the third, etc. (One possible way of explaining this is by taking the "need" model seriously, whereby a fantasy partially satisfies the "need," hence it is lower on the next card. Not having been expressed, it now has recurred for the following card, etc. The important point is that appropriate models for these kinds of instruments must be evolved.)

³ Such situations are by no means exclusively limited to personality tests. Thus, if one administers tests of competence in statistics to graduate students in psychology, one almost invariably finds that items having to do with chi-square tend to have little or no correlation with items having to do with t-tests or analysis of variance. It is obvious that eliminating chi-square from the test would in-

This conclusion may be restated more rigorously by using equation (3):

$C_i = g(A_{i1}, A_{i2}, \dots, A_{ij}, \dots, A_{im})$ (3)
where C_i is the value of individual i on the criterion C , which can now be defined as that particular specified characteristic which is to be measured. The equation simply states that the criterion C_i is some function g of a set of components A_j . For most personality variables it is not now known what the components A_j really are. Nor, obviously, is it likely that there will be measures which correspond to all of these elements A_j . But insofar as one has measures of some element a_j (in this case, responses to a particular card) which corresponds to some element or elements A_j , there will be some correlation between S_i and C_i . If one has additional elements a_j corresponding to more of the elements A_j of the criterion, the correlation will improve.

CONCLUSION

In short, what is implied by this whole discussion is that for personality tests, validity coefficients are important and that reliability is largely an irrelevant consideration.

A MEASURE OF RELIABILITY FOR THOSE WHO INSIST ON IT

But what can one advise the student or colleague in this era when "reliability" is a good word, and everyone is "sophisticated" by their elementary (or advanced) texts into suspicion of anyone not reporting "reliability"? It is really very simple. He should enter mental test theory at that point most advantageous to him.

If classical mental test theory were applicable, then no "validity" coefficient could exceed the square root of the reliability. ("Validity" coefficient as used in this sentence means simply a correlation coefficient between the test and any other independent measure of *any* variable, and *not* the more

crease the reliability and decrease the validity and usefulness, of the test.

specific meaning of validity as correlation with the particular specified characteristic that the test is supposed to measure.)

This may be equivalently stated as the reliability must be greater than the square of any "validity" coefficient. There is no way for this relationship not to hold, if the assumptions of classical test theory apply. This procedure for determining a lower bound to reliability is a well-established part of classical mental test theory (Gulliksen, 1950, pp. 23-28).

Therefore, students who work with personality tests may take the highest validity coefficient (the highest correlation of their test score with anything), square it, and report this estimate of a lower bound to the reliability, which indeed it is. That this lower bound to the reliability, so estimated, is frequently higher than the internal consistency directly measured, is simply evidence of the fact that mental test theory, with its assumption of random error uncorrelated with anything, does not apply to their domain.

If the theory were not Procrustean, such discrepancies would be impossible.⁴

Preferable, however, is the more straightforward recommendation that the student simply report the validity coefficients, and let these coefficients speak for themselves.

REFERENCES

- Freud, S. *The psychopathology of everyday-life*. London: Benn, 1949.
Gulliksen, H. *The theory of mental tests*. New York: Wiley, 1950.
Karon, B. P. *The Negro personality: a rigorous investigation of the effects of culture*. New York: Springer, 1958.

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Received September 17, 1965

Revision received February 18, 1966

⁴Of course, this is not to advocate capitalizing on chance by scanning 100 validity coefficients and choosing the largest. But, in the ordinary course of research, one has one, two, or three validity coefficients, and capitalizing on chance is not a problem.

A Human Modification of the Children's Apperception Test (C A T - H)

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Summary: Since the creation of the CAT fifteen years ago, first introduced in the pages of this Journal, many studies have been published comparing the stimulus value of animal versus human figures. Some outcomes favored the animal figures, while an even larger number favored the human stimuli. It appears that some children respond better to animal stimuli, and some to human figures, depending on particular characteristics of the child. A human modification of the CAT was therefore developed by Bellak and Bellak. It is hoped this version will be useful with older children, especially those with an M.A. beyond ten years, and will thus bridge the gap between the animal CAT and the TAT. The human CAT may also elicit more information from children with particular personality characteristics.

The development of the original Children's Apperception Test (CAT) prior to 1949 was based on a number of propositions, among them to provide a projective test likely to produce themes relevant for the personality of young children. Secondly, animal figures were chosen on the basis of expectations derived from clinical work that young children would identify more readily with animal figures than with human figures and that animal figures would more easily elicit idiographic material. Fables, fairy tales, the high animal per cent in children's Rorschachs, the frequency of animal phobias in children, the role of animals in primitive cultures, identification with animals in children's play, the popularity of animals in TV shows (Flipper, Lassie, etc.) all would tend to render the hypothesis reasonable.

In addition, animal figures have the advantage of being more culture-free, and less structured with regard to sex and age than human figures. It was reasoned that animal figures would increase the extent to which attribution of sex and age to story characters would be based on motivational factors in the child rather than upon "card pull" perceptual factors, thus providing valuable information related to the child's underlying attitudes toward important adult figures.

In constructing the CAT, there was

an attempt to depict scenes which would elicit material relevant to important situations and problems in the child's life (feeding, rivalry, aggression, loneliness, interactions with parental figures, etc.). A further card pull for these important problem areas was created by the use of background props, i.e., human settings, for most of the ten cards.

During the last fifteen years, a number of studies have focused on a comparison of the relative merits of animal vs. human figures. While this is a legitimate and important problem, it became the major concern in CAT research, probably to the detriment of other important issues, such as longitudinal studies of children and significant pathognomonic differences. In addressing themselves to the animal — human stimulus issue, some workers seemed to assume erroneously that the animal characters were what the CAT was meant to stand on or fall.

Literature survey

Studies relevant to the use of animal as opposed to human figures have most recently been reviewed by Bellak and Adelman (1960), by Murstein (1963), and by Haworth (1966). Prior to the construction of the CAT, Bender and Wolmann (1936) arranged the themes of therapeutically oriented puppet shows on the assumption that children, like primitives,

identify themselves and their parents with animals. Bender and Rapaport (1944) had found animal drawings of 7 to 13 year old disturbed children helpful in identifying central personality conflict areas. And in the construction of the Blacky pictures, Blum and Hunt (1952) state that animal figures were chosen over humans to add a measure of ambiguity to the highly structured situations being depicted, with the intent of facilitating personal expression and decreasing resistance to figures "too close to home."

An early comparison of TAT cards with animal pictures was reported by Bills (1950), for 48 male and female school children ages five through ten. He found significantly longer stories to the ten animal (rabbit) pictures, with less card rejections (18 to 1), and concluded that the Ss more easily formulated stories to the animal figures. A methodological limitation of this study (and the one by Bills et al. below) was that the animal pictures were in color and the TAT pictures were not, resulting in a confounding of color with the animal-human variable, as Murstein (1963) has pointed out.

Bills, Leiman and Thomas (1950) then compared the qualitative differences between stories to the TAT and animal (rabbit) pictures. Subjects were four girls and four boys from third grade, and stories to both TAT and animal pictures were compared with non-directive play therapy interviews. Correlations between TAT and animal pictures for 26 of Murray's manifest needs ranged from $-.09$ to $+.58$, three of these comparisons reaching the .05 level of significance. The authors concluded that animal pictures appear to be as valid and useful as the TAT and easier for children in formulating stories than the TAT.

Biersdorf and Marcuse (1953) addressed themselves to the animal vs. human figure problem by constructing two sets of six pictures (similar

to CAT cards, 1, 2, 4, 5, 8, and 10), one set with animal, the other set with human figures. For 30 first-grade pupils of both sexes, no significant differences were found on 7 response productivity measures, including number of words, ideas, characters mentioned, characters introduced, and response time indices. In a second study, Mainord and Marcuse (1954) employed the identical stimulus pictures, but this time with a group of 28 emotionally disturbed children of both sexes (21 boys, 7 girls), aged five years, four months to eight years, five months. Again, no significant differences were obtained on the response productivity measures. However, five clinicians asked to rate the stories for their clinical usefulness (amount of personal structure and dynamics revealed about the child) favored the human set to a statistically significant degree ($p. 001$).

The same year Armstrong (1954) reported a study comparing 60 school children (ten boys and ten girls from first, second, and third grades) on five CAT cards (1, 2, 4, 8, and 10) and on a duplicate set of pictures with human figures, which the author states were ambiguous as to sex. Mean Stanford-Binet I.Q. for each grade of children was in the superior range. Comparison between groups was made on length of protocol, number of nouns, verbs, ego words, transcendence scores and reaction time. Significant differences in Transcendence Index scores were found (i.e., more subjective, personalized, interpretive responses other than pure description) in favor of the human figures. No differences in any other response measures were attributable to the animal-human figure variable.

Light (1954) designed a study to compare the TAT and CAT on more dynamic aspects of story content than on reaction time, story length, and other similar measures, which he felt were not valid indicators of identification. Subjects were 74 fourth and fifth graders, aged nine to ten years, six

months; with a mean age of nine years eight months. With five TAT and five CAT cards presented in a group setting, all of the response measures (amount and kinds of feelings, themes, conflicts, and definite outcomes) were significantly higher for the stories to the TAT.

Boyd and Mandler (1955), noting contradictory findings in the previously published literature, attempted a more extensive evaluation than previous workers. Subjects (96 third graders of mean age eight years, five months, and mean Kuhlman I.Q. of 101) were told two stimulus stories, each of which was followed by a stimulus picture to which they were requested to write their own story. The main variables were a) type of stimulus story (animal or human characters), b) content of stimulus story (central figure engages in socially approved or socially disapproved behavior), and c) type of stimulus picture (animal or human figures). The stimulus pictures (each in an animal or a human version) showed the main character from the stimulus stories in some ambiguous action.

Eight response measures presumably related to personal involvement were evaluated in a three way analysis of variance (2x2x2 factorial design). The response indices were story length, presence of original ideas, value judgments, punishment, reward, and new themes, occurrence of the pronoun I, and the extent of formal features (number of words used for the beginning and conclusion of the story).

Analysis of the *stimulus story* variable revealed that $\frac{3}{4}$ of the Ss preferred the animal over the human stories, while the response measures showed significantly more involvement associated with the stories told with human characters.

Concerning the *stimulus pictures*, the animal figures were found to elicit more personal involvement than the pictures with human figures. Animal pictures had a significantly higher

number of original ideas and beginnings and endings and scored higher on four of the remaining six response measures, though short of statistical significance. The animal cards were found especially to elicit negative feelings, and the authors concluded that socially disapproved behavior seems to arouse more anxiety when originated by human than by animal figures.

Furuya (1957) tested 72 Japanese children from first, fourth, and sixth grades (ages 6 to 12) with the Marcuse-Biersdorf-Mainord cards. He found significantly more definite outcomes and more expression of feelings and of significant conflict in the stories to the human set. Bellak and Adelman (1960) have pointed out that the human figure cards used by Marcuse et al. and by Furuya were more structured than the animal cards with regard to sex and in some instances also more structured as to activity. Thus, while their studies show superiority of human figures on the productivity measures, the decrease of ambiguity from animal to human figures would appear to limit the range of response choice, and in this important sense decrease the value of the human as compared to the animal figures. In this regard, one can question the representativeness of the clinicians' preference for human over animal figures in the Mainord and Marcuse (1954) work, but replication studies are needed to clarify the issue.

Simson (1959) also compared the CAT with human figures. Subjects were 28 second-graders, 14 of whom were administered the animal version first, and the human version two weeks later, and the reverse order for the other 14. He found the human pictures to be associated with shorter reaction time, longer stories, faster verbalization and more story themes.

With the intention of providing a more crucial test of the hypothesis that young children more readily identify with animals, Budoff (1960)

chose four year old nursery schoolers rather than the relatively older children used in previous experiments. Eighteen subjects with Sanford-Binet I.Q.'s above 120 were administered nine CAT cards (#6 was omitted), and an analogous human set in a balanced order with an interval of two weeks between presentations. Response measures were productivity (number of words spoken), story level (presence of object naming, picture description, and a story plot) and Transcendence Index.

Results showed no statistically significant differences between picture sets on the three response measures (except one, attributable to chance because of the number of comparisons made). The overall trend of the data, though not statistically significant, was for higher scores to the human figures on both story level and Transcendence Index, the latter being low for both groups. While he questions the superiority of the animal CAT over human figures in comparable situations, the author states that his findings fail to solve the problem of whether young children more easily identify with animals. Among other suggestions, Budoff conjectures that where responses to human figures are particularly threatening, animal figures might elicit more productive stories due to the increase of psychological distance (as Blum and Hunt [1952] have suggested in another context).

The most recent study comparing animal and human figures is that of Weisskopf-Joelson, and Foster (1962). These authors, interested in the question of what kinds of pictures elicit the greatest amount of projection, created four sets of four CAT cards (3,4,9, and 10). The versions were as follows: animal figures not in color (AN), animal figures in color (AC), human figures not in color (HN), and a color version with human figures (HC).

An attempt was made to keep all aspects of the four stimulus sets con-

stant except for the substitution of human for animal figures and color for black and white. The original CAT cards were consequently modified; animals were clothed, the mouse was omitted from the seated lion picture (CAT card #3), and the kangaroo in CAT card #4 was changed to carry the offspring in her arm rather than in her pouch.

The subjects were 40 kindergarten children, ages five and one-half to seven, with a mean age of six years, two months. A Graeco-Latin square design was used, such that each subject received four stimulus cards, including one each of the four sets (corresponding to CAT cards #3, 4, 9, and 10), and each one being from a different experimental version (AN, AC, HN, HC). The dependent variable was story productivity as measured by the Weisskopf (1950) Transcendence Index.

Mean Transcendence Index scores for all stories to human pictures compared with all stories to animal pictures did not differ to a degree approaching significance ($t = .995$); nor was there any appreciable difference found when all stories to colored pictures were compared with all stories to non-colored pictures ($t = .894$). So neither the animal-human variable, nor the color-non-color variable affected the Transcendence Index productivity scores.

When the 11 highest Transcendence Index scorers were compared with the 11 lowest, a trend (not reaching statistical significance) was noted for the high scorers to show greater productivity when responding to chromatic pictures, and for the low scorers to be more productive when responding to the animal pictures.

As the authors point out, subjects who score relatively high on the Transcendence Index are freer to develop and express fantasies than are low scoring subjects, the latter being more inhibited in this regard. The tendency for low scorers to be more pro-

ductive with the animal figures, the authors then reason, could be due to their finding it easier to reveal themselves under the pretense that they are telling about animals instead of humans. The general consideration suggested here is that personality differences of subjects can be associated with greater productivity to animal or to human pictures, depending on the particular personality configuration.

A review of the literature thus reveals that for the conditions evaluated, some outcomes favor the animal figures, and an even greater number of studies favor the human figures (see Table I). Of the various factors likely responsible for the conflicting results, there is variation among the studies in stimulus cards employed and in outcome measures utilized. Few investigators maintained the ambiguity of age or sex in the human drawings that is inherent in the animal figures. With regard to outcome measures, dynamic evaluation (as compared to word counts, theme counts, etc.) played a relatively small role in the reported studies. In addition, subjects varied among the studies with regard to age, intelligence, and degree and kind of psychopathology. It is likely that the stimulus value of animals gradually decreases between ages seven and ten, especially if the mental age is higher than the chronological age. An adequate comparison of the utility of the two kinds of figures would require studies which control for and systematically sample from among the above variables and which employ the same outcome measures, including some dynamic and clinically relevant indices. Especially sparse are studies employing disturbed children, a point emphasized by Murstein (1963).

The Development of the CAT-H—Human Version

Despite the limitations of the studies purporting to show that human figures in the CAT setting may have more stimulus value than the

animal figures, it was decided to develop a human version.

Among the studies reviewed, those of Budloff and especially of Weisskopf-Joelson and Foster suggest that *some* children do better with animal stimuli, and *some* with human ones, and that these preferences may be associated with specific personality variables: for instance, those subjects having difficulty with producing responses seemed to be better with animal figures. Future exploration of relative preferences of some personality types, the relationship of defensive patterns, age, and I.Q., and psychopathology, is likely to be much more fruitful than the mechanical either/or propositions of many previous studies.

Another important reason for providing a human equivalent to the CAT was that some children between seven and ten, especially those with high I.Q.'s, considered animal stimuli below their intellectual dignity. While many found them "childish" for purely defensive reasons, it was nevertheless felt that a human version would lend itself especially well to an upward extension of the usefulness of the CAT and go further towards closing an age gap between the applicability of the CAT and the TAT.

The Human Modifications In The Pictures

The changing of the animal figures to human figures presented a number of difficult problems. In fact, this process highlighted many of the advantages of the original choice of animals with regard to figures which were rather ambiguous as to age, sex, and many cultural attributes.

Three different artists tried their skill in portraying the nature of the regular CAT in human form, following the instruction of Leopold Bellak and Sonya Sorel Bellak. The different pictures in the CAT presented varying degrees of difficulty in that respect.

In picture *one*, for instance, the adult on the left was clothed in a

TABLE I—Studies of Animal vs. Human Figures

| | STIMULI | SUBJECTS | RESPONSE MEASURES | RESULTS |
|----------------------------------|---|--|---|--|
| Bills (1950) | 10 TAT cards vs. 10 chromatic pics of rabbits in various activities | 48 M & F, 5 to 10, normal school children | Story length, card rejections | Animals—significantly longer stories, fewer card rejections |
| Bills, Leiman & Thomas (1950) | Same as Bills (1950) | 8 M & F, 3rd grade, normal school children | Comparison on 26 of Murray's Manifest Needs | Animals seen as easier for children. Correlation from a .09 to +.58 (3 stat sig) |
| Biersdorf & Marcuse (1953) | 6 CAT cards (#1, 2, 4, 5, 8 & 10) vs. comparable human set | 30 M & F, 1st graders, normal school children | Number of words, ideas, characters mentioned, characters introduced, response time indices | No significant differences |
| Mainord & Marcuse (1954) | Same as Biersdorf and Marcuse (1953) | 28 M & F, 5.4 to 8.5, emotionally disturbed | Similar to Biersdorf and Marcuse (1953), plus ratings of clinical usefulness | No significant differences. Human judged more clinically useful. |
| Armstrong (1954) | 5 CAT cards (#1, 2, 4, 8, 10) vs. a comparable human set | 60 M & F, 1st-3rd graders, IQs superior, normal school children | Story length, number of nouns, verbs, ego words, Transcendence Scores & reaction time | Human significantly higher Transcendence Index. Other measures—no difference |
| Light (1954) | CAT vs. TAT | 75 M & F, 9-10.6, normal school children | Amount & kinds of feelings, themes, conflicts and definite outcomes | Human—all response criteria significantly higher except number of words |
| Boyd & Mandler (1955) | 2 stories (with animal or human characters), each followed by 2 pics of animals or humans in ambiguous action | 96 M & F, mean age 8.5, mean IQ 101, normal school children | Story length, presence of original ideas, value judgments, punishment, reward, new themes, pronoun I, and formal features | Human—for stimulus stories. Animal for stimulus pics |
| Furuya (1957) | Same as Biersdorf and Marcuse (1953) | 72 Jap., M & F, 6 to 12, normal school children | Definite outcomes, expression of feelings | Human more definite outcomes and more expression of feelings and significant conflicts |
| Simson (1959) | CAT vs. comparable human set | 28 German, Age 8-9, normal second-graders | Story length, speed of verbalization, number of themes, reaction time | Human superior on all the response measures |
| Budoff (1960) | 9 CAT cards (#6 omitted) vs. comparable human set | 18 4-year olds, M & F, all IQs above 120, normal nursery school children | Productivity, story level and Transcendence Index | No statistical difference. Trend in favor of human |
| Weiskopf-Joelson & Foster (1962) | 4 CAT cards (#3, 4, 9, 10) vs. comparable human set, color & black & white | 40 M & F, 5.5 to 9, normal kindergarten | Transcendence Index | No difference except by personality |



1



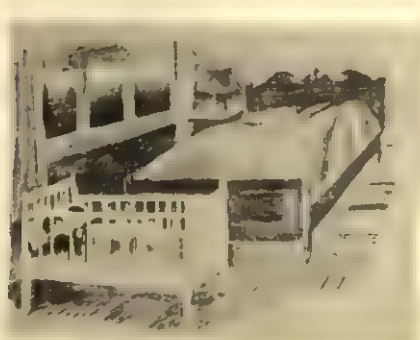
2



3



4



5

shapeless garment which could be a male or female in pajamas and robe. The hairstyle and facial expression can be described as not necessarily of one sex or the other. The same can be said for the children's figures.

In picture *two*, the position of the adult human figure on the right was initially turned more sideways to avoid the problem of breasts, or their lack, as a defining characteristic, but it was finally decided to reproduce



6



7



8



9



10

this figure in the same position as the bear in the original. A variety of garments and hair styles were tried before arriving at the present version.

In picture *three*, the lion was meant to be a father figure and was always

seen that way, so there was no problem of disguising the sex of the figure. But the necessity of changing the mouse to a child in the human version removed the possibility of eliciting stories related to the lion and mouse

fable, e.g., the mouse outwitting the lion or helping the lion.

However, the child was drawn with a somewhat mischievous facial expression, and such a figure might still elicit stories of a similar nature; such as giving help to a man who needs a cane to walk, or by the subject interpreting the shadow near the left knee as an object suitable for mischief.

Picture four presented relatively few problems except for the absence of tails, of course, and the fact that an infant in arms is not quite the same as an infant in the maternal pouch, alas.

Picture five, with its anthropomorphic situation in the original, presented little difficulty.

Picture six, however, was a problem. If one is interested in what Murray has called *Press Claustrum*, there just is no substitute for a cave. To preserve some of the possible stimulus value of the outdoor situation (in primitivity, in romance, in fear of animals and of the wild), the tentlike nature of the structure was emphasized by introducing the new feature of trees. Responses related to the story of the three bears will hardly continue to play a role.

Picture seven was also a challenge. Fears of being devoured needed to be given a stimulus resembling the tiger threat. The grasping, evil-toothed, genii-like figure, supplemented by a steaming kettle (as seen in cartoons about cannibals) was introduced for that purpose. The way the child is depicted might result in chances of escape roughly equivalent to those of the monkey in the original.

Picture eight presented the by now familiar problem of sexual identity. However, the adult figures were nearly always identified as female with the possible exception of the extreme left figure. Therefore, this figure was dressed in slacks, rather than a dress, giving it still some ambiguity, at least in most of the American subcultures.

Picture nine with its anthropomor-

phic setting and lack of determining characteristics presented no adaptation problem.

Picture ten, however, was redrawn many times until a version was finally reached, relatively ill-defined with regard to sex and still leaving the most frequent two choices available—being dried and cared for, or being spanked. In order to maintain more ambiguity, the child's face is drawn in profile rather than full face, as the dog is depicted in the original.

There is little doubt that the degree of ambiguity of the sex of the figures in the CAT-H will vary much more with different cultures and subcultures than the original animal figures. One of the reasons for choosing the animals at the time had been their relative freedom from cultural determinants, at least within the Western World (the furniture in some of the original CAT pictures was redrawn in the Japanese and the Indian versions). However, in those instances in which the CAT-H is preferred from the start, the advantages determining the choice will presumably outweigh the disadvantages of less ambiguity.

Studies with the CAT-H

The human modification was at first tried out clinically by the senior author and by some of his associates, with various relatively small variations of the transposition into human form suggested by clinical experience.

In an unpublished study, Haworth (1964)¹ has approached the comparison of CAT and an experimental set of the CAT-H (provided by the senior author)² with a more detailed and dynamically oriented evaluation scheme than is found in any of the previously published work. All stories

¹Data reproduced with the permission of Dr. Haworth.

²The present published version of the CAT-H differs in some details from this experimental set. We are indebted for this final version of the drawings, among other things, artistically greatly improved, to Phyllis Hurvich, who applied herself to the task with great devotion, understanding, and skill.

TABLE II—A Schedule of Adaptive Mechanisms in CAT Responses

MARY R. HAWORTH, PH.D.

Name..... Date..... Age..... Birthdate.....

Critical Scores:

TOTALS

DEFENSE MECHANISMS

A. *Reaction-formation* (only one check per story)

- 1. Exaggerated goodness or cleanliness
 2. Oppositional attitudes, rebellion, stubbornness
 (A +) 3. Story tone opposed to picture content
 B=5)

B. *Undoing and Ambivalence* (only one check per story)

- 1. Undoing
 2. Gives alternatives; balanced phrases (asleep—awake; hot—cold, etc.)
 3. Indecision by S or story character
 4. Restates (e.g., "that....., no this.....;" "he was going to, but.....")

C. *Isolation*

- 1. Detached attitude ("it couldn't happen," "it's a cartoon")
 (b) 2. Literal ("it doesn't show, so I can't tell.")
 3. Comments on story or picture ("That is hard"; "I told a good one.")
 4. Laughs at card, exclamations
 5. Use of fairy-tale, comic-book, or "olden times" themes or characters
 6. Describes in detail, logical; "the end"; gives title to story
 7. Specific details, names or quotes ("four hours"; she said, ".....")
 8. Character gets lost
 9. Character runs away due to anger
 10. S aligns with parent against "naughty" child character; disapproves
 child's actions

D. *Repression and Denial*

- 1. Child character waits, controls self, conforms, is good, learned lesson
 (5) 2. Accepts fate, didn't want it anyway
 3. Prolonged or remote punishments
 4. "It was just a dream"
 5. Forgets, or loses something
 6. Omits figures or objects from story (on #10 must omit mention of
 toilet and tub or washing)
 7. Omits usual story content
 8. No fantasy or story (describes card blandly)
 9. Refuses card

E. *Deception*

- 1. Child superior to adult, laughs at adult, is smarter, tricks adult, sneaks,
 (3) pretends, hides from, steals from, peeks at or spies on adult (only
 one check per story)
 2. Adult tricks child, is not what appears to be (only one check per story)

F. *Symbolization*

- 1. Children play in bed
 (4) 2. See parents in bed (#5)
 3. Open window (#5, #9); Dig, or fall in, a hole
 4. Babies born
 5. Rope breaks (#2); chair or cane breaks (#3); balloon breaks (#4);
 tail pulled or bitten (#4, 7); crib broken (#9)
 6. Rain, river, water, storms, cold
 7. Fire, explosions, destruction
 8. Sticks, knives, guns
 9. Cuts, stings, injuries, actual killings (other than by eating)
 10. Oral deprivation

G. *Projection and Introjection*

- 1. Attacker is attacked, "eat and be eaten"
 (4) 2. Innocent one is eaten or attacked
 3. Child is active aggressor (bites, hits, throws; do not include verbal or
 teasing attacks)

- 4. Characters blame others
- 5. Others have secrets or make fun of somebody
- 6. S adds details, objects, characters, or oral themes
- 7. Magic or magical powers

PHOBIC, IMMATURE OR DISORGANIZED

H. *Fear and Anxiety*

- 1. Child hides from danger, runs away due to fear
- (3) 2. Fears outside forces (wind, ghosts, hunters, wild animals, monsters)
- 3. Dreams of danger
- 4. Parent dead, goes away, or doesn't want child
- 5. Slips of tongue by S

I. *Regression*

- 1. Much affect in telling story
- (2) 2. Personal references
- 3. Food spilled
- 4. Bed or pants wet, water splashed
- 5. Dirty, messing, smelly; person or object falls in toilet
- 6. Ghosts, witches, haunted house

J. *Controls weak or absent*

- 1. Bones, blood
- (1) 2. Poison
- 3. Slang or nonsense words
- 4. Perseveration of unusual content from a previous story
- 5. Tangential thinking, loose associations
- 6. Bizarre content

IDENTIFICATION

K. *Adequate, same-sex*

- 1. S identifies with same-sex parent or child character
- (L= 2. Child jealous of, scolded or punished by, same-sex parent
- or > K) 3. Child loves, or is helped by, parent of opposite sex

L. *Confused, or opposite-sex*

- 1. S identifies with opposite-sex parent or child character
- 2. Child fears, or is scolded or punished by, opposite-sex parent
- 3. Misrecognition by S of sex or species
- 4. Slips of tongue with respect to sex of figures

(* or 2, if both are E-2 responses)

This checklist has been designed primarily as an aid in the qualitative evaluation of children's CAT stories; it can also be used to furnish a rough quantitative measure for making comparisons between subjects and groups. The Schedule provides a quick summary of the number and kinds of defenses employed as well as the content of items used most frequently. The categories are arranged as nearly as possible on a continuum from indicators of high control and constriction to suggestions of disorganization and loosening of ties to reality.

Directions for Scoring: In the blank preceding each item, indicate with a check mark (or the card number, for future reference) any occurrence of such a response. A story may be "scored" in several categories and, except where indicated, a story may receive checks on more than one item under any one category.

After all stories have been scored, record the total number of checks for each category in the blank provided. The number in parentheses under each of these blanks indicates the minimum number of checks regarded as a "critical score" for that category.

For the Identification measure, the equivalent of a critical score is secured by comparing the relative number of checks for categories K and L. If the sum of checks for L is equal to or exceeds the sum for K, identification is considered to be "confused" and contributes one unit to the total of critical scores.

The final quantitative measure consists of the number of categories receiving critical scores (and not the total number of checks for all categories).

On the basis of research findings (Haworth, 1963) five or more critical scores would indicate enough disturbance to warrant clinical intervention.

for the study to be described were scored for specific defense mechanisms and for story content. The presence of defense mechanisms was assessed with

the Haworth CAT Adaptive Mechanisms Schedule (Haworth, 1963), which is reproduced in Table II. Story content was indexed with the CAT Story

Dynamics Form, Table III.

In the Adaptive Mechanisms Schedule, the categories are arranged in an order going from indications of high control and constriction to signs of disorganization and loosening of reality ties. Critical score levels for each dimension were derived from previous work (Haworth, 1962, 1963). A reliability coefficient of .88 for two judges had been previously reported (Haworth 1963).

Subjects were 22 children (16 boys, 6 girls), ages six years, three months, to ten years, three months, referred to a psychiatric clinic for outpatient diagnosis or for inpatient treatment, with diagnoses ranging from neurotic difficulties and behavior problems to borderline psychoses. Both sets of cards were administered to all subjects in a balanced order, with an equal number of boys and girls in each of the two administration groups. The time between administration of the two sets varied from 14 to 20 days for all but two subjects in each group.

Results showed no significant differences between the animal and human versions of the CAT on the total number of categories receiving critically high scores. The obtained tally was 62 critical scores for the animal form, and 55 for the human form, out of a possible total of 220 (22 Ss x 10 categories per subject) on each form, with a mean of 2.8 for the animal set, and 2.5 for the human. Comparing the consistency of defense mechanism scores between the two forms for the group as a whole, a rank order correlation of .68 (Kendall's tau) is found.

Looking at the data in terms of the consistency for a given subject, approximately half (64) of the 117 critical scores were for the same category for each subject from animal to human form. For the remaining critical scores (53), the S receiving a critical score on a given category for one picture set failed to register a critical

score on the other set. For this sample of Ss, then, there is a difference between the two sets of stimuli with regard to eliciting particular defense mechanisms.⁵

Taking the categories separately, the largest difference in critical score incidence occurred on Projection-Introjection, with 12 tallies for the animal set and 6 for human. Projection is also the highest category where Ss received a critical score on one form but not on the other, again in favor of the animal form (seven instances to one). Ss were most consistent between forms on Identification patterns.

A degree of internal consistency and construct validity is suggested by a consideration of the nine high-scoring Ss in the group. Analysis of these nine Ss who had four or more critical scores on one form or the other (and six of these had four or more critical scores on both forms) showed no consistent differences in high scores or total scores for the two forms. More scores on Regression and Weak Controls for these nine Ss (23 instances) than for the remaining 13 cases (6 instances) were found, but there was no indication that the animal form elicited more of these two dimensions than did the human form.

Story content was indexed with the aid of the Haworth CAT Story Dynamics form (Table III). Any theme found in the records of 20% of the subjects (for either animal or human card set) was defined as a stable theme, and was included in the card by card comparison of the two versions, which is here reproduced from the unpublished Haworth paper.

⁵The statement on this point by the present authors in the first printing of the CAT-H Manual is as follows: "...there is a definite relationship between the two sets of stimuli with regard to eliciting particular defense mechanisms, but the relationship is only moderate." Since none of the critical score comparisons for individual defenses in the Haworth data are statistically significant, the above more accurately summarizes this aspect of the study.

TABLE III—CAT Story Dynamics

Name: _____ Sex: _____ Form: A or H

1. Oral gratification... Deprivation...
 Adult is Father... Mother... Shadow... Other...
 Punishment theme...
2. Game... Fight...
 Winner: Pair... Single...
 Child with: Parent of same sex... of opposite sex... Peer...
3. Adult attacks or scolds child... Child helps adult...
 Adult is king... old, tired, lonely, etc...
 Child attacks adult...
4. Picnic... Disaster, fire, etc...
 Bike runs over tail or leg...
5. Parents in bed...
 Children play in bed... Naughty... Sleep...
6. Child runs away...
 Attack from outside: feared... takes place...
7. Child is: attacked... gets away... turns on large fig...
8. Scolding, punishing... Child is helpful...
 Mention of picture... Secret...
 Male Adult...
9. Attack from outside: feared... takes place...
 Everyday event... Loneliness...
 Parents in another room...
10. Naughtiness relates to toilet... other...
 Punisher is same sex... opposite sex...
 Continues naughtiness... learned lesson...

Cards rejected:

Unusual stories:

Twenty-four of the 48 items reached the 20% criterion.

Card 1. Oral gratification is the main theme for both animal and human forms. For those Ss not using this reponse on both forms, the trend favors the animal form, while more oral deprivation is used on the human form. The adult is most often seen as the mother on both forms, with only a few responses of "shadow" or figure other than father (who is seen $\frac{1}{3}$ as often as mother). Few punishment themes are reported on either form.

Card 2. Predominantly seen as a game, rather than a fight, on both forms, with the pair most frequently seen as the winner, especially on the human card. The child is more often seen with either mother or father on the animal version and almost exclusively with a peer on the human form.

Card 3. No outstanding use of either the adult attacking the child or the child helping the adult on either

form. The large figure is seen as powerful (or as king) *only* on the animal form, and is more often seen as old or tired on the human form. The child figure teases the adult *only* on the animal form.

Card 4. Most frequently seen as going to a picnic or to the store on both forms, and with very few disasters happening in either version. Only a very few instances on either card of the child running over the adult's heel with his bike.

Card 5. Children are seen as playing, sleeping (most often) or being naughty equally on both cards; parents are mentioned equally on both forms.

Card 6. There is no difference between cards in terms of the child running away, fearing attack or an attack taking place; none of these themes were used frequently.

Card 7. The smaller figure is frequently seen as being attacked on both versions, but with somewhat

greater incidence on the animal form. The child escapes equally often on both cards and only infrequently turns to retaliate against the larger figure.

Card 8. Scoldings occur with equal frequency to both cards, and the child is rarely seen as being helpful. The picture on the wall is mentioned more frequently on the human form, and secrets are reported more often on the animal card. Male figures were seen *only* on the animal form and were mentioned in 10 of the 22 stories.

Card 9. Attacks are only infrequently reported as being feared or as taking place on either card. Rather, a preponderance of everyday events are mentioned (especially to the human form), and the parents are occasionally reported as being in the next room. Themes of loneliness occurred more often on the human form.

Card 10. Toilet naughtiness was reported with fair frequency on both forms, but with somewhat more on the human. Punishing parents are seen about equally as being of the same or the opposite sex, but with a trend for more same-sex parents on the animal form and more opposite-sex parents on the human form. In only a very few cases does the child "learn a lesson," and this tends to happen more often on the human form.

Using the same experimental set of the CAT-H that had been employed by Haworth, Lawton carried out a comparison of the animal and human sets on normal children (1966). Her findings are similar to those of Haworth in many respects. Additional comparative studies between the two sets of stimuli are needed to substantiate, extend and refine the results obtained by Haworth and by Lawton, and provide the basis for stable normative expectations for normal and pathological subjects.

SUMMARY

It is hoped that the CAT-H will usefully round out the armamentar-

ium for the study of children. We still think of the regular CAT as the first instrument to consider. However, with children between seven and ten, and especially if their mental age is much higher than their chronological age, the CAT-H may often be more useful. In this sense the CAT-H may be a suitable bridge between the regular CAT and the TAT.

If a child should feel animal stories not appropriate, albeit defensively, the human version is of course indicated. Occasionally, having employed the regular CAT and not having obtained quite a satisfactory story, it may be useful to offer the human version as a supplement in the hope of further data. Certainly, if the CAT-H is used first, the animal version might be used for such purposes. As before, the CAT-S remains for the study of special problem areas.

With regard to research, though the two versions may lend themselves to a further and better study of differences between animal and human stimuli, it is suggested that other significant areas of inquiry not be ignored.

Finally, it would appear that an exploration of the developmental hypotheses of Piaget could be explored horizontally and longitudinally with the help of the CAT series. Similarly, an exploration of psychoanalytic propositions should be fruitful: a study of the changing relationship to parental figures, the possibility of observing systematic changes in latency, the shift of libidinal aims as well as modes would likely be observable. In the area of ego functions, possibly integrated with a study of Piaget's variables, CAT data could be uniquely useful. Cognitive style as well as expressive modes might show interesting phase—and ages—specific variations. In sociological and transcultural studies, differences in attitudes and relationships can be expected to reveal themselves *in statu nascendi*. The Indian modification

by Chowdhury (1960) and the Japanese adaptation by Marui (1956) should be particularly useful for non-western cultures.

REFERENCES

- Armstrong, M. Children's responses to animal and human figures in thematic pictures. *J. consult. Psychol.*, 1954, 18, 67-70.
- Bellak, L., & Bellak, S. An introductory note on the Children's Apperception Test. *J. proj. Tech.*, 1950, 14, 173-180.
- Bellak, L., & Bellak, S. The supplement to the CAT. C.P.S. Inc., Larchmont, New York.
- Bellak, L., & Bellak, S. *The CAT-H—A Human Modification*. C.P.S. Inc., Larchmont, New York, 1965.
- Bellak, L., & Adelman, C. The children's apperception test (CAT), in A. Rabin & M. Haworth (Eds.), *Projective techniques with children*. New York: Grune & Stratton, 1960.
- Bender, L. & Rapoport, J. Animal drawings of children. *Amer. J. Orthopsychiat.*, 1944, 14, 521-527.
- Bender, L., & Woltman, A. G. The use of puppet shows as a psychotherapeutic method for behavior problems in children. *Amer. J. Orthopsychiat.*, 1936, 6, 341-354.
- Biersdorf, K., & Marcuse, F. Responses of children to human and to animal pictures. *J. proj. Tech.*, 1953, 17, 455-459.
- Bills, R. Animal pictures for obtaining children's projections. *J. clin. Psychol.*, 1950, 6, 291-293.
- Bills, R., Leiman, C., & Thomas, R. A study of the validity of the TAT and a set of animal pictures. *J. clin. Psychol.*, 1950, 6, 293-295.
- Blum, G., & Hunt, H. The validity of the Blacky pictures. *Psychol. Bull.*, 1952, 49, 238-250.
- Boyd, N., & Mandler, G. Children's responses to human and animal stories and pictures. *J. consult. Psychol.*, 1955, 19, 237-371.
- Budoff, M. The relative utility of animal and human figures in a picture story test for young children. *J. proj. Tech.*, 1960, 24, 347-352.
- Chowdhury, U. An Indian adaptation of the CAT. Delhi, India: Manasayan, 1960.
- Furuya, K. Responses of school children to human and animal pictures. *J. proj. Tech.*, 1957, 21, 248-252.
- Haworth, M. Responses of children to a group projective film and to the Rorschach, CAT, Despert Fables and D-A-P. *J. proj. Tech.*, 1962, 26, 47-60.
- Haworth, M. A schedule for the analysis of CAT responses. *J. proj. Tech.*, 1963, 27, 181-184.
- Haworth, M. CAT vs. CAT-H with a clinic sample. Unpublished manuscript. 1964.
- Haworth, M. *The CAT: Facts about fantasy*. New York: Grune & Stratton, 1966.
- Lawton, Marcia J. Animal and Human CATs with a school sample. *J. proj. Tech.*, 1966, 30.
- Light, B. Comparative study of a series of TAT and CAT cards. *J. clin. Psychol.*, 1954, 10, 179-181.
- Mainord, F., & Marcuse, F. Responses of disturbed children to human and animal pictures. *J. proj. Tech.*, 1954, 18, 475-477.
- Marui, S. *A Japanese adaptation of the CAT*. 1956.
- Murstein, B. *Theory and research in projective techniques: Emphasizing the TAT*. New York: Wiley, 1963.
- Simson, E. Vergleich von CAT und einer inhaltsanalogen Mensch-Bilderserie. *Sonderdruck aus Diagnostica*, 1959, 5, pp. 54-62.
- Weisskopf, E. A transcendence index as a proposed measure in the TAT. *J. Psychol.*, 1950, 29, 379-390.
- Weisskopf-Joelson, E., & Foster, H. An experimental study of the effect of stimulus variation upon projection. *J. proj. Tech.*, 1962, 26, 366-370.
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Received August 21, 1965

Revision received January 14, 1966

Animal and Human CATs with a School Sample¹

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Summary: Fifty-two school children were administered two forms of the CAT two weeks apart. Half received Animal form first and half received Human form first. Each form was scored as to the defense mechanisms and the various signs from a check list utilized. Analysis of the data by chi square revealed essentially no significant agreement between Animal and Human forms in eliciting or not eliciting the same defense mechanisms from a given child except for projection where if a child obtained a critical score on the Human form he most likely obtained one on the Animal form. However, using the check list there seemed to be considerable agreement between the two forms but with certain striking differences such as more negative reactions to the Animal forms. It was concluded that most of the differences obtained were based on pictorial determinants rather than a theoretical difference.

The purpose of this study was to determine which form of the 10 card series of the CAT, Animal (Bellak, 1954)² or Human (Bellak, 1965)² elicits the greater amount of material to provide a basis for making personality assessment as well as amount of agreement between forms in the type of material they elicit.

METHOD

Twenty four kindergarten pupils and twenty eight second graders, equally divided by sex, ranging in age from 5-7 to 8-6 with means of 6-5 and 7-11 for the two grades, received the tests given individually by the same person.³ These children were from an upper middle class school. Half the children were given the Animal form first and half the Human form with the alternate form being administered after an interval of two weeks.

¹Grateful acknowledgement is made to the following persons from the District 66 School System, Omaha, Nebraska, for their cooperation in making this study possible: Mr. H. Vaughn Phelps, Superintendent; Dr. Neil C. Wodder, Director of Curriculum; and Mr. William J. Dunn, Principal of Sunset Hills School. Appreciation is also extended to the teachers and children in the kindergarten and second grades who participated in the project.

²For this study a set of pictures was used which differed only in relatively minor artistic detail from the published version.

³Thanks go to Mrs. Mary Austin, M.A., for testing and coding.

All stories, which were first coded to assure anonymity, were scored for the presence of adaptive mechanisms, using Haworth's Analysis Schedule (Haworth, 1963). Each story is scored for the presence of such things as quotations, exclamations, sexual confusion, etc. and then the number of this specified under each defense mechanism is added together to obtain a critical score. This procedure yields critical scores in any of ten possible areas ranging from indicators of high constriction and control to regressive manifestations and confused identification patterns. Interscorer reliability on a random sample of 20 sets of stories yielded agreement on 159 out of 200 scores or 80% of the time.⁴

Also, tallies were made for each item listed for each card according to form, sex, and grade. There were 53 items overall such as sex of adult, provider, winner of tug of war, etc.

In order to determine the amount of agreement between forms, two by two chi square analyses, using the Yates correction, were computed on the incidence of critical scores, presence or absence, for each of the ten defense mechanisms. Inasmuch as no deviant results were obtained when analyzed separately by sex and grade,

⁴Thanks go to Dr. Mary R. Haworth, author of the Analysis Schedule for serving as the other reliability judge.

all the data was combined and is presented in Table I.

The material in Table I indicates that actually five of the ten defense mechanisms (Repression, Deception, Fear, Regression and Controls) fail to elicit a critical score on either form in 60% of the children. Thus, chi square analyses on this data are not meaningful for there is too heavy a loading in the Not Animal-Not Human cell.

Chi squares computed for four of the other five defense mechanisms (Reaction Formation, Isolation, Symbolization, and Identification) are not significant. Thus, for the most part there is no agreement beyond chance between the Animal and Human forms in eliciting or not eliciting the same defense mechanisms from a given child. The one exception to this, that of Projection, shows significant agreement between forms. Thus, if a child obtained a critical score on the Human form he most likely obtained one on the Animal form. There were some instances where a child obtained a critical score on the Animal form but not on the Human one. (The manual accompanying the CAT-H, 1965, contains a summary of the present study and the one by Haworth [unpublished] and *erroneously* states that "some" defense mechanisms differed, rather than only projection differed.)

Table I also indicates an overall total of 165 critical scores on the Animal form and 154 on the Human form for 52 subjects which yields a

mean number of 3.08 per child for the Animal form and 2.94 for the Human form. This is sharply in contrast to the mean of 6.73 critical scores per child reported in Haworth's (1963) clinic sample using the Animal form.

Of the total 319 critical score responses elicited 87 to 27% agree whereas expected agreement (Total Animal x Total Human / Total Subjects) is only 63.9 or 20% (See Table I). This indicates that the forms appear to be about equally sensitive in eliciting the same defense mechanism with children who showed a critical score on the first form only slightly more likely to show it on the second form than those who failed to show it on the first form. Careful inspection of the raw data indicates that the particular form given first does not influence the number of critical scores obtained by a child.

The following conclusions as to the type of material elicited by the respective forms are based primarily on examination of 31 of the 53 items which were utilized by 20% or more children on either form (see Table II).

Card 1. Oral gratification is the main theme for both forms and occurs in almost 80% of the stories to Card 1. On the Human form the adult is seen about equally often as mother as father but in the Animal form the adult is almost always seen as a mother with only one child perceiving a father. However, occasionally an-

TABLE I—Incidence of Critical Scores

| Defense Mechanism | Animal Only | Human Only | Both Forms | Expected Agreement | Total Animal | Total Human |
|--------------------------|-------------|------------|------------|--------------------|--------------|-------------|
| Reaction--Undoing | 9 | 9 | 14 | 10.2 | 23 | 23 |
| Isolation | 8 | 11 | 24 | 21.5 | 32 | 35 |
| Repression--Denial | 7 | 3 | 3 | 1.2 | 10 | 6 |
| Deception | 0 | 2 | 1 | .1 | 1 | 3 |
| Symbolization | 10 | 11 | 7 | 5.9 | 17 | 18 |
| Projection--Introjection | 11 | 3 | 19 | 12.7 | 30 | 22 |
| Fear--Anxiety | 8 | 6 | 8 | 4.3 | 16 | 14 |
| Regression | 7 | 6 | 1 | 1.1 | 8 | 7 |
| Weak Controls | 6 | 5 | 6 | 2.3 | 12 | 11 |
| Confused Identification | 12 | 11 | 4 | 4.6 | 16 | 15 |
| Total | 78 | 67 | 87 | 63.9 | 165 | 154 |

TABLE II—Selected Items Appearing
in at Least Twenty Percent
of Stories

| CARD 1 | Animal | Human | Both |
|-------------------------|--------|-------|------|
| Oral Gratification | 46 | 48 | 42 |
| Adult Father | 1 | 17 | 0 |
| Adult Mother | 25 | 21 | 17 |
| CARD 2 | | | |
| Tug of War Game | 38 | 38 | 31 |
| Tug of War—Fight | 10 | 4 | 2 |
| Winner—Pair | 27 | 26 | 16 |
| Winner—Single | 15 | 15 | 7 |
| Child with Opposite Sex | 14 | 2 | 0 |
| Child with Peer | 22 | 36 | 15 |
| CARD 3 | | | |
| Child Attacked | 15 | 4 | 4 |
| Adult—King | 17 | 0 | 0 |
| Adult—Old | 21 | 14 | 9 |
| CARD 4 | | | |
| Picnic or Store | 31 | 40 | 25 |
| CARD 5 | | | |
| Sleeping | 32 | 34 | 25 |
| Parents in Bed | 17 | 13 | 8 |
| CARD 6 | | | |
| Sleeping | 42 | 48 | 40 |
| CARD 7 | | | |
| Child Attacked | 20 | 26 | 11 |
| Child Escapes | 16 | 14 | 7 |
| Child Turns on Adult | 10 | 9 | 3 |
| CARD 8 | | | |
| Scolding | 23 | 24 | 14 |
| Picture | 15 | 19 | 12 |
| Secret | 18 | 15 | 11 |
| Adult Male | 18 | 0 | 0 |
| CARD 9 | | | |
| Attack Feared | 13 | 12 | 4 |
| Sleeping | 22 | 24 | 13 |
| Parents—Other Room | 10 | 5 | 1 |
| CARD 10 | | | |
| Toilet—Naughty | 7 | 14 | 4 |
| Other—Naughty | 35 | 30 | 27 |
| Punish—Same Sex | 21 | 23 | 19 |
| Punish—Opposite Sex | 17 | 17 | 11 |
| Naughty—Lesson | 13 | 7 | 6 |

other adult, usually a hen, is also seen on the Animal form.

Card 2. This picture is predominantly seen as a game rather than a fight on both forms with the pair as the winner. When a fight does occur it is more often on the Animal form. For a given child, there is only about a fifty-fifty chance that he will pick the pair or the single figure on both forms. The child is seen about equally as often with a parent (either mother or father) as with a peer on the Animal version but almost exclusively with a peer on the Human form. If the figure with the child is a parent, both boys

and girls tend to identify the parent as the mother.

Card 3. There is a slight tendency for seeing the adult as attacking the child, rather than being helpful, particularly on the Animal form but on the Human form is never seen as powerful, just old.

Card 4. This is most frequently told as a positive story involving a picnic or going to the store, particularly on the Human version. The few disaster stories which are told occur more often on the Animal form than the Human one. On the other hand when a bumping of the adult by the child does occur (20% of cases), this happens on the Human version.

Card 5. The major theme is one of sleeping for both forms with occasional stories on fear of attack, playing, and naughtiness. Parents in bed are mentioned about equally often for both forms although in only about half of the cases does a given child mention them on both forms.

Card 6. There is no difference between cards in terms of the child running away, fearing attack or an attack taking place with none of these being used frequently. The most frequent theme is that of sleeping, either camping or hibernating, depending on the form.

Card 7. The smaller figure is frequently seen as being attacked on both versions. He escapes equally often on both forms and only infrequently turns to retaliate against the larger figure. Even rarer is a friendship developing between the two figures, although this is more prevalent on the Animal form. In all of these a given child presents the same reaction on both forms in only half of the cases.

Card 8. Scoldings occur with equal frequency to both cards, although not always by the same children, and the child is rarely seen as being helpful. The picture on the wall and secrets are reported about equally often on both forms. Adult males were seen only on the Animal form and were

mentioned in about one-third of the stories.

Card 9. The predominant theme is one of sleep to both forms although a given child is likely to give this kind of story on both forms in only about half of the cases. Fear of attack or loneliness and parents in the other room are occasionally mentioned on both forms but without much agreement. An actual attack and sickness are rarely mentioned on both forms.

Card 10. The naughtiness described by most children involves something other than toilet for both forms; toilet naughtiness, when it does occur, is twice as likely to appear on the Human form as on the Animal one. On the other hand learning a lesson after being naughty occurs in about a fourth of the Animal forms, but in only an eighth of the Human ones. When punishment is mentioned, as it is in most cases, it appears to be meted out slightly more often by the parent of the same sex on both forms, especially for second grade girls.

DISCUSSION

Relatively few critical scores were obtained from this school sample. Although there is no significant difference in the number of critical scores on the Animal and Human forms, when they occur often enough to compare there is minimal agreement between forms in eliciting particular defense mechanisms from a given child. The one significant exception to this is Projection where if a child receives a critical score on the Human form he probably will on the Animal form, also.

Common, expected themes and responses are now available against which a CAT protocol can be compared and contrasted. There is considerable agreement between the Animal and Human forms according to the check list. A few striking differences include: 1) More negative reactions on the Animal form; 2) Adult males on Card 8, adult seen exclusively as mother on Card 1, and adult seen as powerful on Card 3 of the Animal form only; 3) Child with peer almost always on Human form of Card 2; 4) Naughtiness relating to toilet mostly on Human form of Card 10, but learning a lesson mostly on the Animal form of this card.

It would seem that most of these could be resolved by slight modifications in the pictures themselves and that they do not represent any basic theoretical difference in relative eliciting power of the Animal and Human forms. Further study might be oriented towards whether one form is more powerful with a certain type of child, i.e. the withdrawn, the unimaginative, the fearful, etc., than the other form.

REFERENCES

- Bellak, L. CAT-A, CAT-S, CAT-H. Larchmont, New York: C. P. S. Inc., 1965.
- Bellak, L. *The TAT and CAT in clinical use*. New York: Grune & Stratton, 1954.
- Haworth, Mary R. A schedule for the analysis of CAT responses. *J. proj. Tech. Pers. Assess.*, 1963, 27, 181-184.
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Received August 21, 1965

Revision received November 23, 1965

The Effect of Non-Personality Factors on Ink-Blot Responses in a Cross Cultural Study

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Summary: Two ethnic groups of Officer Candidates in the Israel Defense Army, one of Eastern and one of Western origin, were compared by means of a Group Behn-Rorschach. The highly significant differences between the two groups on five ink-blot variables, which could have been erroneously interpreted as due to personality factors, vanished, when level of education was controlled within the relatively narrow range of above average intelligence. The results of the study support Lindzey's criticism that lack of control of nonpersonality factors severely restricts the validity of projective techniques in cross-cultural research.

Projective tests — especially the Rorschach — have been widely used in studies of cross cultural comparisons, with the aim of assessing personality differences between various ethnic groups, to establish the traits of the Modal Personality and to study possible effects of acculturation. However, as is evident from Lindzey's recent survey (Lindzey 1961), non-personality factors like age, education, language facility, socio-economic status etc., have not been controlled in the majority of these studies. In his critical survey of the literature, Lindzey stresses the fact that lack of such control severely restricts the validity of projective techniques in cross-cultural research (1961, pp. 298, 299).

Applying a group Rorschach technique (Kohen-Raz, 1962) Amir, Kohen-Raz and Rabinowitz investigated the validity of the Rorschach and Behn-Rorschach tests for officer selection in the Israel Defense Army.

Seven ink-blot variables (No. of Responses, Rejections, D, DS, M, C, A), scorable by trained clerks, differentiated significantly between high and low scorers on the criterion of the Selection Board. All differentiating variables were related to practical in-

telligence and some of them to emotional stability. Significance of the relationships vanished when level of intelligence and education were held constant. The Behn-Rorschach alone proved to be more discriminative than the Rorschach and as good as both sets combined. (Amir, Kohen-Raz and Rabinovitz, 1965).

In the present study the data of this investigation were used for a cross-cultural comparison. Two groups of officer candidates differing in ethnic origin were compared. One group consisted of 318 Ss who were born in Western countries or born in Israel to parents from those countries (Europe and America); the other group was composed of 149 Ss originating from Eastern countries (Asia and North-Africa). All the Ss were 19 year old males who had completed at least 10 years of formal education, were of above-average intelligence, and received high scores on a knowledge of Hebrew test. The sample is thus *relatively* homogeneous as to level of education, intelligence, and language facility, besides being controlled on age and sex. Socio-economic level has been shown to correlate highly with education and is thus in part controlled through the latter variable.

TABLE I — Behn-Rorschach Responses by Country of Origin, Education, and Country of Origin with Education Held Constant

| Comparison Groups | Country of Origin | | Education | | Higher Education Group | | Lower Education Group | |
|---------------------------|-------------------|------------------|----------------|------------------|------------------------|------------------|-----------------------|------------------|
| | N = 467 | | N = 467 | | N = 220 | | N = 247 | |
| | West vs East | | High vs Low | | West vs East | | West vs East | |
| Behn-Rorschach categories | 318 | 149 | 220 | 247 | 177 | 43 | 141 | 106 |
| | X ² | p ⁽¹⁾ | X ² | p ⁽¹⁾ | X ² | p ⁽¹⁾ | X ² | p ⁽¹⁾ |
| Responses | 7.41 | xx | 16.66 | xxx | | n.s. | | n.s. |
| Detail | 13.32 | xxx | 16.88 | xxx | | n.s. | 4.64 | x |
| Movement | 8.85 | xx | 11.90 | xxx | 10.53 | xx | | n.s. |
| Animal | 8.30 | xx | 11.32 | xxx | | n.s. | | n.s. |
| Rejections | 16.35 | xxx | 17.50 | xxx | 10.12 | xx | | n.s. |

(1) — for one degree of freedom

x — significant at .05 level

xx — significant at .01 level

xxx — significant at .001 level

Ink-blot responses of the two ethnic groups showed highly significant differences on Behn-Rorschach Variables,¹ i.e., R, D, M, A, and Rejections. Ss of Western origin scored higher on the first four variables and lower on the last than those Ss originating in the East. However, when the total sample was regrouped on the basis of level of education comparison of responses for high and Low education groups yielded similar significant differences. Moreover, the directions of the differences were the same as for the ethnic groups — the group with higher education scored higher on the first four variables and lower on the last one. Knowing that the Western group was of a somewhat higher educational level this finding suggested the hypothesis that the differences between the ethnic groups were only a by-product of the differences between educational levels.

In fact, when controlling education for the two ethnic groups by dichotomizing education (completion vs. non-completion of high-school)—see Table I—most of the differences between the ethnic groups were re-

duced to insignificant levels,² leaving only Rejection and Movement differentiating in the group with high education, and Detail in the group of low education. Similar results were found when the ethnic groups were dichotomized on intelligence.

While the remaining differences might still be of value, especially in the light of the rigorous controls applied, the important finding of this comparison is the amount of influence of the non-personality factor of education and intelligence on the results, which could have been erroneously interpreted as cross-cultural differences of *personality*.

In this context the results of Neff's and Lidz's study of 15 years ago should be quoted, which showed in another normal population of military personnel similar effects of intelligence level, as measured by the Army General Classification Test, on ink-blot syndromes, supposed to be indicative of *clinical* personality differences. (Neff and Lidz, 1951). Actually the results of this and the present study are quite consistent in relation

¹The reason for using Behn-Rorschach and not Rorschach variables is explained in the original study.

²The lack of significance in the differences when education is held constant is not an artifact due to the smaller size of the dichotomized samples, as can be seen from the amount of change in the X²'s.

to the direction of change, effected by the intelligence factor on three of the four ink blot variables, which are comparable in both papers. (Number of Responses, D and M). The fact that parallel results have been found in populations of different racial and cultural background, using different ink-blot sets and different methods of administration, seems to add weight to the general validity of Neff's and Lidz's critical conclusions that intelligence level must be taken into account before evaluating personality dynamics by means of the Rorschach. In a similar vein the results of the present paper strongly support Lindzey's criticism of applying projective techniques in cross cultural comparison without controlling the effect of

non-personality factors.

REFERENCES

- Amir, Y., Kohen-Raz, R., & Rabinowitz, G. A Group Rorschach Technique for Screening Army Officers. *J. consult. Psychol.*, 1965, 29, 598.
- Kohen-Raz, R. Eine Kollektive Rorschach Methode mit 20 Tafeln. *Schweiz. Zeitschr. f. Psychol. und ihre Anwendungen*. 1962, 21, 329-338.
- Lindzey, G. *Projective Techniques and Cross-Cultural Research*. New York: Appleton-Century-Crofts, 1961.
- Neff, W. S., & Lidz, T. Rorschach Patterns of Normal Subjects of Graded Intelligence. *J. Proj. Tech.*, 1951, 15, 45-47.

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Received July 14, 1965

Revision received February 21, 1966

Rorschach Test Correlates of Dreaming and Dream Recall¹

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Summary: Measures of frequency of dream recall for 47 Ss and of amount of dreaming for 18 Ss, as determined by the Dement-Kleitman method, were available as part of a larger investigation of the influence of personality factors on dream recall. Rorschach Test indices obtained from these Ss were intercorrelated among themselves and correlated with the appropriate dream variable in order to assess the presumed affinity of dream phenomena and Rorschach response processes. The results were: (1) indices of fantasy predominance correlated positively with both amount of dreaming and frequency of dream recall; (2) indices of associative productivity correlated positively with frequency of dream recall; (3) an index of introspective constriction correlated negatively with frequency of dream recall. Further exploration of this area seems promising.

That an affinity exists between dream phenomena and the response processes evoked by Rorschach's test is a belief widely shared by clinicians. Rorschach (1951) himself spoke of both as "inner" or self-determined productions," and sought confirmatory evidence for his test interpretations in dream analyses. Similarly, Leary (1957) in his interpersonal theory of personality groups dreams with Rorschach and other projective test responses as measures of 'the level of private perception'.

In view of this seemingly natural convergence, surprisingly few studies have been reported relating the Rorschach test to dream variables. The work of Fortier (1952), Bolgar (1954), Mann (1955), Palm (1956) and Blondel (1959) may be cited. These studies were methodologically dissimilar and met with varying success in establishing links between dreams and the Rorschach test. Only Mann attempted to assess the relationship of Rorschach scores and indices with dream variables, and he found no statistically significant associations between M , ΣC , C total, $M:\Sigma C$, $M:\Sigma C$ total, $FM + m$, $Fc + c + C'$, $FM + m:Fc + c + C'$ and five dimensions of dreaming. The five dimen-

sions were completeness and detailedness of narrative, pleasantness-unpleasantness, recency and recurrence, each rated from a single dream reported by subjects in an interview situation.

The present note reports some findings on the relation of Rorschach test indices to dreaming and dream recall that were made in the course of a larger study of personality factors influencing dream recall (Orlinsky, 1962). Such a report seems justified on two grounds: as a further test of the existing *a priori* belief in the affinity between dream phenomena and Rorschach processes, and as an improvement in the methodology of assessing dream phenomena. Measures of dreaming were obtained by the electroencephalographic and oculographic technique introduced by Kleitman and his associates (Aserinsky & Kleitman, 1955; Dement & Kleitman, 1957a, 1957b). This technique has essentially revolutionized the field of dream research by vastly increasing the objectivity possible in collecting and measuring dream phenomena. The two dream variables for which data are available are (1) frequency of dream recall and (2) the percentage of sleep time occupied in dreaming.

METHOD

Dream Measures

The details of the Kleitman technique and the basic findings on dream-

¹The author wishes to thank Drs. Joe Kamiya, Donald Goodenough and Meta Steiner for providing part of the data on which this study is based, and Dr. Nancy Orlinsky for her assistance in checking test scoring.

ing and the sleep cycle are already familiar, and may be found in the references cited above. Briefly, it has been found that certain periods of sleep are characterized by a low voltage fast activity EEG pattern (Stage I) and by the occurrence of rapid eye movements (REMs). When subjects are awakened from these Stage I-REM periods of sleep, they are far more likely to report that they had been having dream experiences than when they are awakened from other stages of sleep.

The criterion used in this study for the acceptance of positive dream reports upon awakening was the ability of the subject to describe some specific mental or cognitive content. Denial of having dreamed, or the claim of having dreamed without the ability to describe some specific mental content, was considered a negative report. Dream recall was defined as the presence of positive report upon awakening from Stage I-REM sleep, and a measure of the frequency of dream recall (REM R%) for an individual was derived by computing the percentage of Stage I-REM awakenings in which positive dream reports were present. The median number of Stage I-REM awakenings per subject was fifteen; the range extended from five to thirty-three.

The measure of dream time percentage (DT%) was derived by calculating the total length of time in minutes which an individual spent in Stage I-REM periods during sleep, and then computing the percentage which this formed of the total time the individual's sleep was recorded during nights in the laboratory. Some justification for this procedure as a measure of the psychological duration of the dream experience may be found in the report by Dement & Kleitman (1957a) that subjects' estimates of the length of their dreams correlated well with objective time measure of the Stage I-REM period from which they were awakened. DT% data were available for only about a third of the sub-

jects studied, and these measures were not "pure" because some of the Stage I-REM periods involved were interrupted to obtain dream reports. There was, however, no detectable bias in the times at which Stage I-REM periods were experimentally terminated, so that all subjects for whom DT% was recorded had their dream time diminished by a roughly equivalent amount.

The dream data reported in this study were derived from subjects participating in projects conducted in the laboratories of Dr. J. Kamiya, then at the University of Chicago, and of Drs. D. Goodenough and A. Shapiro at the Downstate Medical Center, State University of New York, in Brooklyn. The equipment and procedures used by these laboratories were described in Orlinsky (1962) and in Goodenough, Shapiro, Holden & Steinschreiber (1959), respectively.

Rorschach Indices

The Rorschach test was individually administered to each subject, in Brooklyn by Dr. Meta Steiner and in Chicago by the author. Scoring and computation of summary indices for all tests were done by the author prior to the computation of dream measures, in the manner prescribed by Beck (1950), and were checked by an independent judge trained in Beck's method. The following Rorschach indices were used in the analysis: ΣR ; $W\%$; $Dd\%$; $F\%$; $M\%$; $M+FM+m\%$; ΣC ; ΣY ; $M/\Sigma C$; $F+\%$; Extended $F+\%$; $H\%$; $A\%$; and ΣP . Thus, total productivity, location, determinants, constructed indices, and content aspects were all represented.

Subjects

Forty-seven subjects comprised the sample, 18 obtained from the Chicago laboratory and 29 from the Brooklyn laboratory. Of the former, 12 were men with a mean age of 27.8 years (range 17-44) and a mean education level of 15.7 years (range 10-21); six were women with a mean age of 24.8 years (range 14-33) and a mean edu-

cation level of 14.8 years (range 9-18). Occupationally, eight were university students, three were high school students, two were in professions, three were skilled manual workers and two were housewives. They were selected as dream research subjects somewhat opportunistically on the basis of availability and prospective interest. All of the Brooklyn subjects were men, mostly between 20 and 30 years of age. Twenty-four of them were occupied as college or medical students, one as a research assistant, one as an actor, and two in undetermined ways. The Brooklyn subjects were selected for study on the basis of their extreme responses to a questionnaire on frequency of dreaming: eight had reported dreaming "almost every night" and 21 had reported dreaming "once every month" or less. In summary, the total sample is comprised primarily of young adults with a high level of education, most of them men and most of them still students in a university setting.

RESULTS

The median REM R% for the total sample was 82%, with a range extending from 22% to 100% recall. DT% data were available for the Chicago subjects only; the median was 16%, and the range varied from 8% to 22%.

Analysis of the relationships of REM R% and DT% to the fourteen Rorschach test indices was made by computing Spearman rank-order correlations (Siegal, 1956). The results of this analysis are presented in Table I. It may be seen that dream recall was positively and significantly correlated with the following Rorschach indices: ΣR , M%, ΣY , M/ ΣC , H% and ΣP . Dream recall was negatively and significantly correlated with F%.

For the subsample of 18 Chicago subjects, DT% was positively and significantly correlated with M%, M+FM+m%, and ΣY . The correlation between REM R% and DT% for the Chicago group was $-.28$ ($p > .05$).

To aid in the interpretation of

Table I, the intercorrelations of indices which showed significant correlations with the dream variables were examined; this is summarized in Table II. By inspection it may be seen

TABLE I—Correlations of Rorschach Indices with Dream Variables

| Rorschach Index | REM R% ^a | %DT ^b |
|-----------------|---------------------|------------------|
| ΣR | .31 | .13 |
| W% | -.05 | .05 |
| Dd% | .21 | .30 |
| F% | -.38 | -.35 |
| M% | .45 | .41 |
| M+FM+m% | .24 | .50 |
| ΣC | .09 | -.17 |
| ΣY | .30 | .45 |
| M/ ΣC | .41 | .35 |
| F+% | .10 | -.33 |
| Ext. F+% | -.04 | -.19 |
| H% | .43 | .12 |
| A% | -.01 | .03 |
| ΣP | .33 | .00 |

^a N = 47; when $\rho = .29$, $p = .05$;
when $\rho = .37$, $p = .01$

^b N = 18; when $\rho = .46$, $p = .05$;
when $\rho = .58$, $p = .01$

TABLE II—Intercorrelations of Rorschach Indices Related To Dream Variables

| Rorschach Index | Positive r_s | Negative r_s |
|-----------------|-------------------------|---|
| ΣR | ΣY , ΣP | F% |
| ΣY | ΣR , ΣP | F% |
| ΣP | ΣR , ΣY | F% |
| M% | M/ ΣC , H% | F% |
| M/ ΣC | M%, H% | — |
| H% | M%, M/ ΣC | F% |
| F% | — | ΣR , ΣY , ΣP , M%, H% |

Note: All correlations significant beyond the .05 level, two-tailed.

that the seven Rorschach indices form three distinct clusters: one associated with associative productivity (ΣR , ΣY , ΣP); one associated with fantasy predominance (M%, M/ ΣC , H%); and one associated with the tendency to respond only to the form determinant (F%).

DISCUSSION

The findings of this study may be summarized as follows:

- (1) Indices of fantasy predominance correlate positively with both

amount of dreaming and frequency of dream recall;

- (2) Indices of associative productivity correlate positively with frequency of dream recall;
- (3) An index of introspective constriction correlates negatively with frequency of dream recall.

The first finding tends to directly confirm a conjecture by Rorschach (1951, p 72) in which he suggests a common psychological basis for perceived movement in the test and for dream recall. This common basis is the kinesthesia, which Mourly Vold (1910) described as a salient ingredient in the dream experience, and the preservation of which Rorschach thought necessary for the production of M and the recall of dreams. "On awakening, necessary movements, physical motion, begins at once. This movement sets the dreams aside. There is, however, a way to recall dreams: lie perfectly motionless on awakening in order not to cover up the kinesthesia of the dream by presupposed physical movement." The correlations of fantasy indices with both DT% and REM R% support this line of reasoning.

Similarly, the findings regarding measures of associative productivity and introspective constriction tend to support the conventional meanings assigned to these indices in test interpretation. In general, the results support the presupposed belief in an affinity between dream phenomena and Rorschach response processes.

Although this study did not proceed from previously held hypotheses, and thus requires cross validation before its results may be fairly construed as supportive of Rorschach test validity, the pattern of results seems intelligible according to traditional clinical usage. Further exploration of the relationship between dreams and the Rorschach test would seem indicated by this report.

REFERENCES

- Aserinsky, E., & Kleitman, N. Two types of ocular motility occurring in sleep. *J. of appl. Physiol.*, 1955, 8, 1-10.
- Beck, S. J. *Rorschach's test. I. Basic processes*. Revised edition. New York: Grune & Stratton, 1950.
- Blondel, G. An investigation into the relationship between the Rorschach test and the first dream in therapy. *Dissertation Abstracts*, 1959, 19, 3018.
- Bolgar, H. Consistency of affect and symbolic expression: a comparison between dreams and Rorschach responses. *Amer. J. of Orthopsychiat.*, 1954, 24, 538-544.
- Dement, W., & Kleitman, N. The relation of eye movements during sleep to dream activity: an objective method for the study of dreaming. *J. of Exp. Psychol.*, 1957, 53, 89-97. (a)
- Dement, W., & Kleitman, N. Cyclic variations in EEG during sleep and their relations to eye movements, body motility, and dreaming. *Electroencephal. & Clin. Neurophysiol.*, 1957, 9, 673-690. (b)
- Fortier, R. A study of the relation of response to color and some personality functions. Unpublished doctoral dissertation, Western Reserve University, 1952.
- Goodenough, D., Shapiro, A., Holden, M., & Steinschreiber, L. A comparison of "dreamers" and "non dreamers": eye movements, electroencephalograms, and the recall of dreams. *J. abnorm. & soc. Psychol.*, 1959, 59, 295-302.
- Leary, T. *Interpersonal diagnosis of behavior*. New York: Ronald, 1957.
- Mann, L. The relation of Rorschach indices of extroversion-introversion to certain dream dimensions. *Jour. clin. Psychol.*, 1955, 11, 80-81.
- Mourly Vold, J. *Über den Traum*. Leipzig: O. Klemm, 1910.
- Orlinsky, D. Psychodynamic and cognitive correlates of dream recall. Unpublished doctoral dissertation, University of Chicago, 1962.
- Palm, R. Comparative study of symbol formation in Rorschach test and dream. *Psychoanalyt. Rev.*, 1956, 43, 246-251.
- Rorschach, H. *Psychodiagnostics*. Berne: Verlag Hans Huber, 1951.
- Siggal, S. *Nonparametric statistics for the behavioral sciences*. New York: McGraw-Hill, 1956.
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Received October 4, 1965

Healthy, Neutral, and Unhealthy Content in the Rorschach Responses of Schizophrenic and Normal Adults

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Summary: The present study contrasts the group Rorschach protocols of psychotics and normals who had been equated for certain socio-economic factors. The Ss' protocols were scored for "healthy, neutral, and unhealthy" contents, and the hypothesis under test was that psychotics would give primarily neutral content, whereas normals would proffer more healthy and unhealthy Rorschach contents. This hypothesis was substantiated. Indeed, over two-thirds of the abnormals gave predominantly neutral responses to the Rorschach, while over half of the normals gave predominantly unhealthy responses. The range of unhealthy content in the present study was rather high, suggesting that adults may give more of this content than children. The findings are discussed in terms of a "defensiveness" interpretation of S's test behavior.

In an earlier study (Rychlak & O'Leary, 1965), five samples of Ss (N = 563), ranging in CA from roughly 11 to 18 years were administered the Harrower Group Rorschach slides (Psych. Corp., 1959), and a subsequent analysis of the test's content failed to support the view that "unhealthy" Rorschach content was in fact pathognomic, when assessed against independent criteria of personal adjustment. Indeed, the findings suggested that young people give at least one so-called unhealthy response (disease, rotting, mask, hair, etc.) per ten to the Rorschach, and, where this relative frequency increases it is either of no consequence or probably a rather healthy sign. Thus, both the Cattell ego-strength and will-power factors were found to correlate *positively* with unhealthy content, the latter reflecting an r of .61 in one sample (Cattell, Beloff, & Coan, 1958). This naturally raises the question as to whether such findings on unhealthy Rorschach content would be found with an adult sample, and, in particular, with a psychotic group. The present research was undertaken to answer this question. In addition, an extension was made in the testing procedure to account for Rorschach content judged to be "healthy" and "neutral."

Although validating evidence has

been sparse, the belief in unhealthy Rorschach contents has been formalized at least since Lindner's (1952) early speculations on the possibility of Rorschach content carrying a meaning of its own. Schafer (1954, p. 183) then helped to perpetuate this belief, writing as he did of the ominous contents which emerge in the Rorschach protocols of those individuals who suffer from a psychotic breakdown. There is much face validity to the view that devastation, filth, decay and gory contents imply abnormality, the breaking down of defenses, etc., in the psychic economy of an S reporting it. On the other hand, there is a line of reasoning which would suggest that normals may be just as prone to report such contents as abnormals. Holt & Havel (1960) develop this thesis by reasoning from Kris' (1952) concept of "regression in the service of the ego." The suggestion is that so-called unhealthy content may be a reflection of primary process thinking, and that the ego of the mature, healthy person can at times relax the controls of secondary process thought and: "... use the freedom and fluidity of the primary process productively" (Holt & Havel, 1960, p. 266). In other words, some of the less conscious promptings of the healthy individual, like hostility or sexual concern, may receive expression in the phantasy engendered by

the amorphous stimulus properties of the Rorschach blots. Schafer (1958) has also discussed this side of the problem, and we are therefore left with two equally tenable but opposite positions on the question of Rorschach contents of an unhealthy nature.

Turning to research data on the content of adult Rorschach responses, there is very little to report and the findings are equally inconclusive. Harris (1960, p. 396) noted rather informally that he had found airsick Naval Air Cadets to consistently report more unhealthy content (smoke, explosion, blood, etc.) than nonairsick Cadets. Since the relation between airsickness and personal adjustment is not known, this does not help us resolve our dilemma. Henry & Rotter (1956) may have reported somewhat more relevant data, because their study suggests that defensiveness on the part of *S* can account for the extent of unhealthy Rorschach content he reports. These authors gave different instructions to college *Ss* who were being individually administered the inkblot test. The experimental *S* was told that the test was aimed at identifying serious emotional disturbances, and this instruction served to significantly constrict his protocol when compared to a control *S*, who took the test under standard Klopferian instructions. The threatened *Ss* gave fewer aggressive responses, more populars, and their protocols in general were benign and routine as to content.

Turning to another projective instrument, Eron's (1950) extensive study of adult TAT stories has a direct bearing on the present enquiry. He obtained 3000 TAT stories from 150 male U. S. veterans, including 50 college student normals, 25 nonhospitalized psychoneurotics, 25 hospitalized psychoneurotics, 25 hospitalized schizophrenics, and 25 miscellaneous neuropsychiatric patients. There were very few differences noted across psychiatric designations on the TAT, and the same held true for normal vs. combined abnormal comparisons.

What minor differences there were went in the direction predicted by the present series of researches (Rychlak & O'Leary, 1965). Thus, hospitalized patients gave more bland, flat, and colorless stories. The nonhospitalized abnormals and the normals were prone to give more sad, and also more happy stories than the hospitalized patients, who seemed like the Henry & Rotter *Ss* under threat, to be constricted. Normals of the Eron sample, possibly reflecting the 'regression in the service of the ego' mechanism, were more free than the abnormals to express themes of strife and illicit sex. Normals expressed aggression directly, whereas the neurotic group expressed aggression indirectly, and the psychotics seemed unable or unwilling to give much hostility in their TAT stories.

Basing their expectation in large measure on the findings of Rychlak & O'Leary (1965) and on Eron's (1950) TAT data, the present authors predicted that abnormal adults would proffer *less* unhealthy and *less* healthy Rorschach contents than would normal adults. It was expected that psychotic *Ss* would bunch their percepts around a fairly bland series of content, termed "neutral" for the purposes of this study. The theoretical rationale which underlay this prediction stemmed naturally from the "lack of defensiveness" thesis which was implied in the Henry & Rotter (1956) study, and from the "healthy regression" or "spontaneity" thesis suggested in the Kris (1952) writing.

METHOD

Subjects

A sample of psychotic *Ss* was drawn from several wards of a large metropolitan hospital (St. Louis State Hospital). Only those patients who were diagnosed as schizophrenic (all sub-varieties included) on initial (after admission) and secondary staffings (several weeks later) were chosen as experimental *Ss*, selected from closed wards with the help of ward personnel

who gave preliminary information on the cooperativeness one might expect from various patients. This was a limitation on the randomness of selection, but, since only a certain number of Ss were needed from each ward, there were often more patients than sample requirements. At this point a random selection procedure was followed, eliminating potential Ss entirely by chance. In all, 60 schizophrenics (30 female, 30 male) were included in the experimental group. There were two male and four female Negroes included among an otherwise Caucasian sample, and socio-economic background ranged from the upper-lower to the upper-middle classes, with a general weighting in the middle class. Some typical occupations for this group included laborer, truck driver, office clerical, domestic, school teacher, and housewife. The age range was 18 to 45 years, with a median of roughly 28 years, and the median educational level was 10.7 years. The median length of hospitalization was 11.5 months.

Control Ss were selected from the membership of a local branch of the YMCA. With the cooperation of organizational officials, 60 normals (i.e., no known instance of having ever been hospitalized for psychiatric reasons) (30 female, 30 male) were roughly equated with the experimental group as to age, sex, and socio-economic background. There were two male and two female Negro members of the otherwise Caucasian control group. Social class level was approximately the same, though possibly just slightly higher on the side of middle-classness, and some typical occupations of control Ss were farmer, cab driver, office clerical, beautician, school teacher and housewife. The age range was 18 to 47 years, with a median of roughly 30 years, and a median educational level of 12 years. Admission to the control group was on a purely voluntary basis, after initial selection had been made from organizational records. Control Ss

were informed that they would be part of a study investigating "what people see in inkblots." This was what the experimental group had been told preliminary to their decision as to whether or not to cooperate; the number of refusals to cooperate after initial contact was only slightly higher in the experimental than in the control group.

Rorschach Measurement

The Harrower Group Rorschach slides (Psych. Corp., 1959) were used, with experimental instructions tailored to suit the specific aims of this investigation. The test was administered in pretesting to 20 patients, of the same general characteristics as the experimental group, and, using their responses as examples, a manual was constructed which divided inkblot responses into the three major headings of Healthy, Neutral, and Unhealthy. A description of each category with appropriate examples follows:

Healthy. This category included all positive interpersonal or interanimal activities: "two women mixing a pot of stew, two bugs dancing to music." Recreational contents, suggesting as they did pleasurable associations, were also scored here: "a pair of hockey sticks." Esthetically elaborated percepts, or any percept suggesting an interest in the arts, architecture, science or religion were also scored, as: "painting of a pretty landscape; the Eiffel tower; a beautiful church." In the same way, elaborated nature responses were scored as healthy if they combined aspects of the blot in a way transcending the mere listing or naming of disparate factors: "a mountainous stretch of shoreline."

Neutral. This category included unelaborated cultural artifacts, such as "book, chair, airplane," or comparable natural objects proffered simply as "island, water, mountains." The non-anthropomorphized animal and unelaborated human was also scored here: "bat, woman, two bears climbing, man's feet." All ill-defined, eva-

sive, and non-committal responses were also scored under this heading: "I don't know, black and white, an inkblot, a bunch of colors."

Unhealthy. These scorings were patterned after the earlier work (Rychlak & O'Leary, 1965). Any diseased, bloody, or mutilated flesh response like "split-open skull, swatted fly" was included here. Death, decay and destruction were scored here: "crumbs and ashes." Disguises fell under this category: "mask, someone hiding behind a screen." Blatant sexual responses, and references to hair or fur were scored here. All tension or turbulence responses were scored, as: "atomic explosion, men arguing, two animals fighting over some food." Smog, clouds, mud and dirt responses fell here. Stereotyped cultural fears, like "witches, scorpions, snakes" were scored under this category. Finally, abstract and personalized responses were scored here: "natural forces, a strange fantasy, science."

As a check on the scoring reliability of the manual, two raters who were thoroughly familiar with the content categories independently rated a new sample of 20 protocols selected from the hospital population. Considering only those responses scored by one or the other of these raters, the percentage of agreement was 87 (agreements divided by total comparisons between raters).

Additional Adjustment Measures on the Psychotic Group

As an additional check on their adjustment, experimental Ss were administered the MMPI (Hathaway & McKinley, 1951). Since there was some slight reticence on the part of YMCA organizational personnel to the administering of the MMPI, it was decided best to drop this aspect of the study among the controls. The research hypothesis did not demand that the controls take the MMPI in any case. The purpose which these Ss fulfilled was to provide comparison data to the patients on the Rorschach

content dimensions. Finally, ward aides were asked to rate all experimental Ss on the Furgus-Falls Rating Scale (Lucero & Meyer, 1953), so that an estimate of general adjustment level within the institution might be utilized in data analyses.

Procedure

Virtually all testing was done in groups of 10 to 12 Ss at a time. The abnormals took the MMPI test approximately one week before the Rorschach. A 30 watt projector was used to project the Rorschach slides on a beaded screen 55 x 60 inches in dimensions, located directly in front of S and 15 feet from the projector. Shades were drawn and lights extinguished in the daytime, or minimal lighting was used at night, but in either case there was ample visibility for the recording of responses. All Ss were given a pad of three answer sheets, with places marked for 10 responses on each sheet. They were told that the E was interested in what they might see in certain inkblots about to be projected on the screen, and asked to keep two points in mind: that this was not a test with right or wrong answers in the usual sense, and that the entire group would have to go through the inkblots together — one at a time.

Subjects received three trials on the ten inkblots, with an opportunity to make one response per card per trial. Responses were written on the answer sheets. Pretesting had suggested the following exposure times: on the first trial each slide was shown for 30 seconds, with a 30 second interval for the recording of a percept; on trials two and three each slide was exposed for 20 seconds, with 20 seconds provided for recording between exposures. Thus, the maximum number of responses which could be given was 30.

Subjects were informed that they could use the whole blot or any part of it to see something. The E also noted that, if nothing could be seen, the S was to place an X in the space

provided on the answer sheet for the inkblot being shown. During actual testing, *E* repeated the following instructions immediately after flashing each card on the first trial, and then stated them randomly on trials two and three: "What might this be, what does it remind you of, what do you think it looks like?" In most instances, the Rorschach testing was completed in 45 minutes.

RESULTS

An S's raw score on the Rorschach content was the percentage of R seen in a given category, multiplied by 100 to remove the decimal point. Table I gives the healthy, neutral, and unhealthy Rorschach content means and sigmas for the experimental and control groups, broken down by sex and combining sex totals. Note that the findings of Table I consistently support the experimental hypotheses, in that the psychotics group most of their responses in the neutral category, whereas the normals expand their percepts to the healthy and unhealthy extremes. Since these data are interdependent (i.e., healthy, neutral and unhealthy scores total 100%) it was decided that a non-parametric statistic was called for.

To test the experimental hypothesis statistically, Ss were first typified as to the "predominant content" which was reflected in their protocols. For example, an S who gave 45% neutral, 25% healthy, and 30% unhealthy was termed a "neutral" perceiver as to the predominant content of his Rorschach protocol. Following this categorization, Ss could be compared across experimental groups on the basis of a Chi-square analysis. Table II gives this sample comparison of the predominant Rorschach response for combined sexes. Note again that the experimental hypotheses are strongly supported. The findings of Table II were retained when schizophrenics and controls were compared within sexes as well, at the .05 level for males and .01 level for females. There were

TABLE I—Healthy, Neutral, and Unhealthy Rorschach Content Means and Sigmas Across Experimental Groups

| Rorschach Content | Schizophrenic Group | | | | Normal Group | | | | Comb. Sex | | | |
|--------------------|---------------------|-------|--------|-------|--------------|-------|--------|-------|-----------|-------|-------|-------|
| | Male | | Female | | Male | | Female | | Mean | Sigma | | |
| | Mean | Sigma | Mean | Sigma | Mean | Sigma | Mean | Sigma | | | | |
| Healthy Content: | 16.73 | 11.38 | 19.43 | 15.58 | 18.08 | 13.48 | 24.73 | 10.06 | 29.10 | 16.64 | 96.73 | 13.35 |
| Neutral Content: | 45.83 | 21.26 | 51.53 | 24.14 | 48.67 | 22.70 | 30.46 | 15.68 | 31.33 | 15.70 | 30.81 | 15.69 |
| Unhealthy Content: | 37.43 | 10.39 | 29.03 | 16.59 | 33.23 | 13.49 | 44.80 | 17.22 | 39.57 | 13.67 | 42.43 | 15.44 |

Note: Scores and percentage of total responses to the Rorschach categorized healthy, neutral or unhealthy.

TABLE II—Sample Comparisons of Predominant Rorschach Response (Combined Sex)

| Experimental Group: | Number of Subjects Reporting Content Predominantly: | | |
|------------------------|---|---------|-----------|
| | Healthy | Neutral | Unhealthy |
| Schizophrenic (n = 60) | 3 | 41 | 16 |
| Normal (n = 60) | 11 | 16 | 33 |

Note: The chi-square value for Table II is 19.32, $P < .01$.

no sex differences found within experimental or control conditions, however, suggesting that Rorschach content as measured in this study was tied to personal adjustment level rather than to sex.

If order to check on the possibility that any single subdivision of the healthy, neutral, and unhealthy categories might have accounted for experimental differences (re. above), *Es* broke down the 120 test protocols into these more refined arrays of content. Thus, e.g., in the healthy category an individual percent of R scoring for positive interpersonal references, recreational content, esthetic responses, etc., was done. In the neutral category a similar breakdown was made of unelaborated cultural artifacts, unelaborated natural objects, etc. The same refined array was worked out for the unhealthy subdivisions. Visual inspection of these breakdowns easily reflected the fact that a heavy loading in any one or two subdivisions could not account for experimental differences in the broader category. Where an experimental group showed a predominance of response under one major heading, as the unhealthy category, this was retained throughout the finer breakdowns as well. There was a remarkable stability across such refined comparisons. In only one instance was there what might be termed a "large" disparity between the normals and abnormals on the refined arrays. Normals gave more "disguise" responses (almost 4%) than abnormals (who gave less than 1%). This was the largest disparity noted, and *Es* therefore conclude that the broader categories as originally con-

ceived reflect a uniform tendency in *S*'s responses.

The final point of interest has to do with the relationship between patient Rorschach content and the MMPI and Fergus Falls rating scale of ward adjustment. The latter instrument correlated positively with healthy content for the combined sexes of the schizophrenic sample (r of .25, $P < .05$). The neutral category on Rorschach content failed to correlate significantly with any of the MMPI dimensions. All of the significant Pearsonian correlations now to be reported between content and the MMPI are at the .05 level of significance. Unhealthy content correlated positively with *Hs* (.35) and *Sc* (.41), but only for schizophrenic females. Unhealthy content correlated negatively with *Mf* (−.31) for the combined psychotic sample. Healthy content among female psychotics was found to correlate negatively with *Hs* (−.35) and positively with *Mf* (.36). Healthy content for the male schizophrenics correlated negatively with *Pa* (−.40) and *Ma* (−.35), but positively with *Mf* (.39). For the combined sexes, healthy content correlated positively with *Mf* (.31).

DISCUSSION

The findings are in support of the experimental hypotheses, and suggest that some revision in thinking is called for, as regards the nature of pathognomic projective fantasy. Normal individuals are clearly more prone to proffer unhealthy contents and healthy contents than are abnormals. Whereas over two-thirds of the abnormals gave predominantly neutral responses to the Rorschach, over half

of the normals gave predominantly unhealthy responses. That it is rare for an individual to give primarily healthy responses to the inkblots (only three psychotics and eleven normals did so) is doubtlessly tied to the stimulus properties of the Rorschach slides. Inkblots simply look more like blotches, blobs, blood and smeared unmentionables than they look like the more attractive aspects of our experience. In this sense, the present findings on the Rorschach seem to cross-validate Murstein's extensive work on the stimulus properties of TAT cards (1963, pp. 167-228). We must expect, therefore, that unhealthy contents will emerge in *all* test protocols which Ss proffer. The remarkable development in the present study is the high rate of unhealthy content to be found in adult protocols, which seems to be almost twice as prevalent as in the protocols of children and adolescents. Rychlak & O'Leary (1965) found typically that young people give between 17% and 22% unhealthy content, whereas the range in the present study is from roughly 29% through 45%. More data are surely called for here, especially from adults of a broader socio-economic background.

Turning to the objective test findings and rating scale data, we note a possible reason for how unhealthy contents obtained their reputation as pathognomic indicants. For, at least in the case of female psychotics, the more unhealthy content reported by S the more likely was it that her Hs and Sc scores would increase. Healthy content was related to lowered scores on the Hs dimension for the female patients. Although male psychotics showed no MMPI trends on the unhealthy dimension, they did tend to give increasing amounts of healthy content as their Pa and Ma scores dropped off. Healthy content was also related to good ward adjustment among the combined psychotic sample, as assessed by the Fergus Falls scale. As a uniform group, then, the

psychotics *did* reflect some slight evidence in favor of the classical view that healthy content increases and unhealthy content drops off as the psychotic individual improves in personal adjustment. The problem is that the findings are so scanty as to be taken by some to be chance relations, and, since we lack MMPI data on the controls, there is no way of generalizing even these meager findings to a normal population.

On the other side of the coin, a perplexing finding was that both male and female psychotics had their healthy contents correlate positively with Mf. For the combined group this was the case, as was the opposite finding that unhealthy content decreased as Mf measures increased. This suggests that healthy content is related to maladjustment and unhealthy content to good adjustment in sex role, because the MMPI is keyed to reflect a rising Mf score in feminized men and masculinized women. In this instance there would surely be no support for the conventional view of healthy content suggesting a uniformly better and unhealthy content a uniformly poorer personal adjustment. On balance, therefore, we would have to conclude that unhealthy vs. healthy distinctions in Rorschach content are highly suspect and very likely misleading if taken as reflections of S's general level of personal adjustment. In line with the "defensiveness" thesis of the Introduction, if the hospitalized psychotics gave neutral content to avoid revealing their adjustment status, one could say they succeeded to the extent that neutral content failed to correlate significantly with any of our independent measures.

We cannot, of course, be certain why it is that the psychotics did not proffer more varied contents than they did. Our defensive thesis, the notion of an ability to regress for ego-strengthening purposes, etc., makes sense. But then it could also be that other factors have merely entered to constrict the psychotic such as lowered motivation

to respond, or a deficiency in intellectual facility due to some disease process. Then too, it may be that the nature of psychoses is to cut down on alternatives in perception. The psychotic may not be "defending" so much as he is unable to see the "possibility" in things. A literalness may have descended upon him which constricts his approach to life, including his performance on the Rorschach. It takes a certain ability to concoct alternatives, in literally dialectical fashion, to meet life's challenges successfully. Psychotics may have lost this spontaneity for any of a number of psychological and/or physical reasons. Until we have more thoroughly explored the performance of various groups of adults on the Rorschach, we will not be able to comment further on precisely what factors are at play in their inkblot perception.

REFERENCES

- Cattell, R. B., Beloff, H., & Coan, R. W. *Handbook for the IPAT high school personality questionnaire: form A*. Champaign, Illinois: Institute for Personality and Ability Testing, 1958.
- Eron, L. D. A normative study of the Thematic Apperception Test. *Psychol. Monog.* 1950, 64, No. 9 (Whole No. 315).
- Harris, J. G. Jr., Validity: The search for a constant in a universe of variables. In Maria A. Rickers-Ovsiankina (Ed.) *Rorschach psychology*. New York: John Wiley & Sons, 1960. Pp. 390-489.
- Harrower, Molly R. Group Rorschach method slides. In *Test Catalog*. New York: The Psych. Corp., 1959, p. 48.
- Hathaway, S. R., & McKinley, J. C. *Minnesota multiphasic personality inventory: manual*. New York: Psychological Corp., 1951.
- Henry, Edith M., & Rotter, J. B. Situational influences on Rorschach responses. *J. of consult. Psychol.*, 1956, 20, 457-462.
- Holt, R. R., & Havel, Joan. A method for assessing primary and secondary process in the Rorschach. In Maria A. Rickers-Ovsiankina (Ed.) *Rorschach psychology*. New York: John Wiley & Sons, 1960. Pp. 263-315.
- Kris, E. *Psychoanalytic explorations in art*. New York: International Universities Press, 1952.
- Lindner, R. M. The content analysis of the Rorschach protocol. In L. E. Abt & L. Bellak (Ed.) *Projective psychology*. New York: Knopf, 1952.
- Lucero, R. J., & Meyer, B. T. A validation study of the L. M. Fergus Falls behavior rating scale. *J. clin. Psychol.*, 1953, 9, 192-193.
- Murstein, B. I. *Theory and research in projective techniques*. New York: John Wiley & Sons, 1963.
- Rychlak, J. F., & O'Leary, L. R. Unhealthy content in the Rorschach responses of children and adolescents. *J. prof. tech. & pers. Assessm.*, 1965, 29, 354-368.
- Schafer, R. *Psychoanalytic interpretation in Rorschach testing*. New York: Grunc & Stratton, 1954.
- Schafer, R. Regression in the service of the ego: The relevance of a psychoanalytic concept for personality assessment. In G. Lindzey (Ed.) *Assessment of human motives*. New York: Rinehart, 1958.
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Received October 11, 1965

A Comparison of Normals and Schizophrenics on a New Scale of the Rorschach CET¹

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Summary: A new scale for scoring the number of correct responses on the Rorschach Concept Evaluation Technique was developed, based on the responses of 250 normal subjects. Using this scale the scores of 125 hospitalized schizophrenics were compared with the normals. The two groups were differentiated at better than the .001 level.

The Rorschach Concept Evaluation Technique (CET) (McReynolds, 1954, 1965a, 1965b, in press) is a clinical instrument designed to assess conformity and idiosyncrasy in cognitive functioning. The testing procedure involves the examiner's presenting to the subject 50 designated areas on the Rorschach blots and asking for each one whether it could or could not be a given concept (e.g., bat, fish, tree, etc.). The subject answers "Yes" or "No" to each presentation, and on the basis of his responses two main scores, reflecting how his answers compare with those given by the standardization group, are typically computed. These scores are *J*, a T-score measure of the subject's tendency to say "Yes," and *V*, a T-score measure of the extent to which his responses deviate—independently of *J*—from the responses of the normative group. *J* is considered to reflect the looseness-strictness of the subject's cognitive categorizing, and *V* the conformity-idiosyncrasy of his cognitive content.

In a number of studies (reviewed in McReynolds, in press) *V* and *J*, particularly *V*, have been shown to possess considerable clinical utility. For example, Johnson (1958) found *V* to distinguish significantly between paranoid and non-paranoid schizophrenics, and between chronic and acute schizophrenics, as well as between schizophrenics and nonschizo-

phrenics. The purpose of the present paper is to describe a new scale of the CET, *number correct responses (C)*, and to test its utility by a comparison of normals and schizophrenics.

METHOD

The C Scale. The new scale is based on data from the standardization sample of 250 normal subjects (McReynolds, 1965a, 1965b). The percentages of subjects answering "Yes" to each of the 50 items were computed, and the items which more than 60 percent of the subjects answered "Yes" were keyed *Y*; similarly, the items which less than 40 percent answered "Yes" (i.e., more than 60 percent answered "No") were keyed *N*. Items for which the percentages of "Yes" answers were between 40 and 60 were not keyed. Items ($n=18$) keyed *N* by this procedure are 2, 5, 11, 12, 15, 16, 18, 22, 24, 26, 29, 33, 35, 36, 40, 42, 49, and 50; items not keyed (9) are 3, 6, 7, 17, 25, 32, 39, 45, and 48; all other items (23) are keyed *Y*.² The 250 normative cases were then scored for No. Correct responses (number items keyed *Y* answered "Yes" plus number keyed *N* answered "No"; the maximum possible score is 41). The distribution of scores was negatively skewed; it was normalized and T-score conversion values (with the mean set at 50 and the standard deviation at 10) were computed (available in McReynolds, 1965b); a T-score equivalent of a given raw score (No. Correct) is referred to as the *C* score.

¹From the Behavioral Research Laboratory, VA Hospital, Palo Alto, California. Grateful acknowledgement is made to Edward C. Moseley for making available the test data on the schizophrenic sample.

²For a complete list of CET items see McReynolds (1954 or 1965b).

Procedure. The *C* scale was used in a nine-hospital Veterans Administration study (Gorham and Pokorny, 1964) in which the CET, in company with a number of other instruments, was used to assess the efficacy of different treatment programs for schizophrenia. This project was solely concerned with assessing patient changes and involved the comparison of test and rating data before and after drug therapy. It did not include comparisons of patient data with normative data. The CET scores from that study were, however, made available to the present author. These scores were compared with the normative data already available, in order to determine the utility of the CET variables in differentiating schizophrenic and normal subjects. For this purpose the CET scores obtained before treatment were utilized.

Subjects. The normative sample has been described in detail elsewhere (McReynolds, 1965a). It included 133 men and 116 women (there were no significant sex differences), with a mean age of 34.73 years and a mean education of 11.68 years.

The schizophrenic sample was comprised of 125³ males with a mean age of 36.34 years. While their exact mean years of education is not available, they were distributed as follows: eighth grade or less, 29; some high or vocational school, 37; graduated high or vocational school, 29; some college, trade or business school, 18; BA or BS degree, 9; some graduate work, 1; completed professional school, 2. This distribution suggests that the schizophrenics did not differ appreciably from the normals on amount of education. The exact mean years previous hospitalization are also not known, but the distribution⁴ was as follows: none (newly admitted), 13; 1-6 mo., 28; 7-12 mo., 19; 13-24 mo., 19; over

24 mo., 46. The sample was thus fairly chronic. Sub-diagnostic data on the sample were not available.

RESULTS AND DISCUSSION

The mean *C* for the normal standardization group, as noted above, was 50, with a standard deviation of 10. The mean *C* for the schizophrenics was 37.66, with a standard deviation of 9.76. The CR for the difference between these means is 11.42, which is significant at better than the .001 level.

Some idea of the efficacy of *C* in separating the normals and schizophrenics⁵ can be gained by comparing it in this regard with the separations provided by *V* and *J*. The *V* and *J* scores available on the schizophrenics are T-scores based on the earlier standardization group of 228 (McReynolds, 1954); these, however, are essentially the same as would be provided by the presently available norms based on the augmented sample of 250 cases (McReynolds, 1965a), so that their use in this connection is not inappropriate. For *V* the mean of the schizophrenics ($N=99$; 26 protocols did not provide scorable *V*s) was 42.52 and the standard deviation was 8.82; for *J* the analogous values were 42.33 and 18.60. The CRs for the differences between the means of the normals and schizophrenics are: for *V*, 6.73 and for *J*, 4.27, (for both CRs, $p < .001$).

From these results it appears that *C* can be a useful variable on the CET. While the performance on the variable of pathological groups other than schizophrenics needs to be assessed, the present findings point to the probable utility of *C* in large-scale psychiatric screening programs.

Though *C* represents a new CET

³ The total schizophrenic sample included 150 cases but only 125 completed the CET both before and after treatment, and only scores on this group were available.

⁴ Data were not available on one case.

⁵ While it is of course possible that the difference between normals and schizophrenics would be less in additional samples, due to the phenomenon of "regression toward the mean," the present difference is so extremely great as to indicate that the net effect of any such phenomenon would be minimal.

scale, it is not the first use of a number-of-correct-responses variable on the test. The original experimental work (McReynolds, 1951) included such a score based on an *a priori* rational keying, and this score yielded very promising results. And Eriksen (1954) used a number-correct variable, derived from a key based on a college sample, as a measure of ego strength.

When the CET was first proposed for clinical use (McReynolds, 1954), however, a number-correct score was not included. This was because it can be shown logically (McReynolds, in press) that a number-correct score cannot contain much information beyond that contained in *J* and *V* jointly, and these two scores, which are independent, are essential variables of the test. It appeared, therefore, that a number-correct score would be somewhat redundant. The reason the present empirically based *C* was developed despite this conclusion was that it seemed probable that such a variable would be a more useful single variable than either *V* or *J* in measuring patient change or separating normal and pathological groups. These expectations are supported by the Gorham-Pokorny study and the present results. Intercorrelations among the variables are also in line with anticipations. Product-moment correlation coefficients were, for *C-V*, .66 ($N=99$, $p < .01$), and for *V-J*, -.13 ($N=99$, $p > .05$). The relation between *C* and *J* is curvilinear, and was estimated by eta:

$$r_{CJ} = .54 \quad (N = 125, p < .01).$$

The question arises, what is the psychological meaning of *C*? Directly, *C* reflects the extent to which the subject perceives and categorizes the test stimuli in the way that normals do. To the extent that the test task can be considered representative of the subject's overall perceptual and con-

ceptual processes, *C* can be interpreted as a general, overall measure of his conceptual adequacy or deviance. This meaning does not seem too far removed from Eriksen's (1954) use of a similar scale to measure his conception of egostrength as the "capacity to appraise reasonableness."

In conclusion, the results of this study are such as to raise the status of the number of correct responses score (*C*) to that of a major variable on the Rorschach CET, comparable in importance to the previously recommended scores *J* and *V*. In particular, it appears that *C* may prove useful in large scale psychiatric screening programs, especially in view of the brevity (10-15 min.) of the test.

REFERENCES

- Eriksen, C. W. Psychological defenses and "ego strength" in the recall of completed and incomplete tasks. *Journal of Abnormal and Social Psychology*, 1954, 49, 45-50.
- Gorham, D. R., & Pokorny, A. D. Effects of a phenothiazine and/or group psychotherapy with schizophrenics. *Diseases of the Nervous System*, 1964, 25, 77-86.
- Johnson, L. C. Rorschach Concept Evaluation Test as a diagnostic tool. *Journal of Consulting Psychology*, 1958, 22, 129-133.
- McReynolds, P. Perception of Rorschach concepts as related to personality deviations. *Journal of Abnormal and Social Psychology*, 1951, 46, 131-141.
- McReynolds, P. The Rorschach Concept Evaluation Technique. *Journal of Projective Techniques*, 1954, 18, 60-74.
- McReynolds, P. Standardization data on the Concept Evaluation Technique. Research Report No. 32, Behavioral Research Laboratory, VA Hospital, Palo Alto, 1965a.
- McReynolds, P. Manual: Rorschach Concept Evaluation Technique. Los Angeles: Western Psychological Services, 1965b.
- McReynolds, P. The Concept Evaluation Technique: a survey of research. *Journal of General Psychology*, in press.

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Received October 14, 1965

Revision received February 4, 1966

Body Image in Chronic Alcoholics and Non-Alcoholic Psychiatric Patients

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Summary: The present study evaluates the body image of chronic alcoholics and compares the body attitudes of alcoholics with those entertained by a group of non-alcoholic psychiatric patients. Seventy male veterans hospitalized for chronic alcoholism were compared with 50 non-alcoholic psychiatric patients on a variety of body image measures. Chronic alcoholics differed from controls in their body attitudes and perceptions. Alcoholics significantly exceed non-alcoholics in perceiving their bodies as dirty, disgusting and in state of decay. Ninety days of intensive treatment on an institutional basis does not alter these basic melancholy attitudes, although following treatment, alcoholics admit to fewer abnormal body sensations.

The persistent and prolonged ingestion of alcohol has deteriorating and destructive effects on the human body. Chronic alcoholism has even been viewed as an indirect suicidal attempt through slow devastation of the body. The physical evidence of chronic alcoholism is readily apparent in the altered physique and facial appearance of the persistent drinker. However, despite the general agreement among investigators in the field of alcoholism as to the debilitating effects of the drug, little attention has been paid to the alcoholic's own perception and attitudes regarding his body. The present study evaluated the body image of chronic alcoholics and compares the body attitudes of alcoholics with those entertained by a group of non-alcoholic psychiatric patients.

Subjects and Procedure.

The alcoholic group comprised 70 male veterans who voluntarily came to the Houston VA Hospital seeking treatment for chronic alcoholism. They ranged in age from 28 to 60 with a mean age of 36.4 years. The average years of school attendance was 11.4, although the range was from 5th grade to 4 years of college. The commonly found disruption in family life and the usual nomadic occupational situation of the alcoholic were endemic to this population. Alcoholic patients admitted to heavy drinking

over a period of 1-25 years, and two-thirds of the group admitted to DT's at one time or another.

A comparison group of 50 open ward non-alcoholic psychiatric patients was also examined. These patients averaged 35 years of age and had attained 11.1 years' mean education. In neither group was there a diagnosis of active psychosis, organic brain damage (other than chronic alcoholism), or acute infectious disease.

The alcoholic group was enrolled in the Alcoholism Treatment Unit, a 90-day intensive program featuring group psychotherapy as the treatment focus. The non-alcoholic group comprised male veterans hospitalized for psychiatric difficulties other than alcoholism.

Patients are admitted to the alcoholic treatment program on the condition they (a) acknowledge a problem with alcohol; (b) are willing to remain in the program for the full 90-day period; (c) abide by all of the general rules and regulations of the hospital; and (d) agree to remain in the hospital without a pass the first four weekends. Inebriation while in the program results in immediate discharge. Patients are admitted in groups of 14 and remain together as a therapy group for the entire program. The therapeutic regimen includes the Physical, Manual Arts, Educational,

Industrial, and Occupational Therapies with the major emphasis being placed on intensive group psychotherapy, the groups meeting twice a day, five days a week.

In order to assess their body attitudes and perceptions, a variety of procedures were employed previously found fruitful in other studies on body image (Cleveland et al. 1962; Reitman & Cleveland, 1964). The Holtzman Inkblot Technique (HIT) was administered and scored for the body image (Cleveland, Fisher, Reitman, & Rothaus, 1962; Reitman & Cleveland, 1964). The Holtzman Inkblot Technique (HIT) was administered and scored for the body image indices of barrier and penetration. In addition the HIT was scored for all responses involving deterioration and decay ("eroded rock"; "driftwood rotting") and these responses were subsumed under the variable Decadence. Finally, because of previous controversy in the literature (Griffith, 1961; Griffith & Dimmick, 1949; Marks, 1959; Shereshevski-Shere & Lasser, 1952) a count was made of all direct reference to the word "water" on the HIT. Subjects were also required to make a series of estimates of body size using a technique adjusting luminous rods in a dark room described elsewhere. (Cleveland et al. 1962). Finally, a Body Experience Questionnaire (BEQ) devised by Fisher (1964) was given. The BEQ comprises 82 items referring to various categories of distorted body experience. For example, subjects are asked to check the presence or absence of such body experiences as "Parts of my body feel swollen," or "My skin feels unclean." The BEQ yields 8 scoring categories including perceived unusual largeness or smallness of body parts, change in body size, loss of body boundaries, feelings of body contamination, blocked body openings, unusual skin sensations, and feelings of depersonalization.

Both subject groups were initially studied immediately on hospital ad-

mission. The alcoholics were re-examined at the conclusion of their intensive treatment program 90 days later. Controls were re-administered the HIT prior to their hospital discharge approximately 90 days after hospital admission. Opportunity was not available to re-administer the other test procedures to the control group. At the time of hospital admission the alcoholics were sober.

Results

Comparison between the alcoholic group and non-alcoholic controls on a number of scores derived from the HIT was made using Chi-square analysis. Similar comparison was made for body size judgments and response to the BEQ. In Tables I-IV comparison

TABLE I—Alcoholics vs. Non-Alcoholics on Barrier Score

| | Low | High |
|----------------|-----|------|
| Alcoholics | 32 | 38 |
| Non-alcoholics | 31 | 19 |

$$X^2 = 3.10 \text{ (N.S.)}$$

TABLE II—Alcoholics vs. Non-Alcoholics on Penetration Score

| | Low | High |
|----------------|-----|------|
| Alcoholics | 27 | 43 |
| Non-alcoholics | 31 | 19 |

$$X^2 = 6.41 \text{ (Significant at .02 level)}$$

TABLE III—Alcoholics vs. Non-Alcoholics on Decadence Score

| | Low | High |
|----------------|-----|------|
| Alcoholics | 35 | 35 |
| Non-alcoholics | 41 | 10 |

$$X^2 = 11.66 \text{ (Significant at .001 level)}$$

TABLE IV—Alcoholics vs. Non-Alcoholics for Water Responses

| | Low | High |
|----------------|-----|------|
| Alcoholics | 23 | 47 |
| Non-alcoholics | 35 | 15 |

$$X^2 = 16.11 \text{ (Significant at .001 level)}$$

is made between the two subject groups for barrier and penetration scores and for Decadence and Water responses on the HIT. It will be noted that while alcoholics and non-alco-

holics do not differ significantly on barrier score, alcoholics do score higher on the other three variables, penetration, Decadence and Water responses.

In respect to judgment of own body size, alcoholics exceed controls in estimating head, foot and stomach size, while not differing in the estimate of 12". On the BEQ alcoholics admit to a significantly greater number of body experiences involving sensations of blocked body openings (e.g., "My ears feel stopped up", "My throat feels blocked") than do non-alcoholics. In addition, alcoholics score higher than controls on items involving body contamination (e.g., "I feel like I should wash my hands", "The odor of my breath does not seem pleasant"). No other differences between alcoholics and controls emerged on the BEQ.

Retesting of the alcoholics at time of discharge following 90 days of intensive treatment revealed no change in any of the HIT derived test scores compared to pre-testing. On the BEQ alcoholics scored significantly lower on the post-testing for all of the scoring categories. That is, following treatment alcoholics admit to fewer abnormal body symptoms as compared to their pre-treatment self-evaluation. Post-testing for body size judgments revealed significantly smaller size estimation for all body parts in the alcoholic group.

Discussion

Chronic alcoholics differ from non-alcoholic psychiatric patients in their body attitudes and perceptions. Alcoholics significantly exceed non-alcoholics in perceiving, at the fantasy level, their bodies as dirty, disgusting, and deteriorated. In their inkblot fantasies alcoholics mirror the debilitation that is taking place at the physical level and conceive of their bodies as wasted, degenerated, and in a state of decadence. For example, alcoholics expressed certain depressive fantasies involving a sense of personal deterioration and dissolution more often than

did controls. These unusual fantasies reveal special feelings of decay and disintegration on the part of the alcoholics. Such inkblot responses as the following were characteristic of the alcoholic group: "Eroded rock"; "driftwood washed up on the beach"; "debris that has been knocked around"; "a decayed, torn up butterfly"; "old, rotten, decayed bones"; "rusted and corroded metal."

Alcoholics also exceed controls on the body image index of penetration. In fact, the theme of decay and deterioration so prominent in the alcoholics' fantasies is but a special type of penetration response. These elevated penetration scores as compared to non-alcoholic psychiatric patients' responses further illustrate the diffuseness of the alcoholics' body boundary concept.

In respect to judgment of own body size, alcoholics exceed non-alcoholic, non-psychotic psychiatric patients in estimate of a variety of body parts. In other words, alcoholics visualize their head, foot, and stomach size to be significantly greater than do non-alcoholics. Other studies have demonstrated that over-estimation of body size coincides with a vague and diffuse body image. For example, in previous studies (Cleveland et al., 1962) gross over-estimation of body size was characteristic of schizophrenic groups, and in the present study alcoholics were intermediate in their body size estimates between non-psychotic and previously studied schizophrenic groups. Differences in size estimation among schizophrenic, alcoholic and control groups has been restricted to judgment of body parts. Subject groups did not differ significantly on estimation of 12 inches. In other words, no general perceptual distortion appears to be operating, but rather selective distortions occur involving personal, intimate objects such as ones own body areas.

Overestimation of body size has been found to be related to psychopathology as in the case of schizo-

phrenic groups and also to drug effects. For example, Liebert, Werner, and Wapner (1958) administered LSD to normal subjects. Under this drug condition, perceived head size and arm length increased although perceived size of neutral, non-body objects such as a dollar bill or a pack of cigarettes did not change. The investigators concluded that LSD tends to break down body image boundaries, resulting in an expansion of the perceived boundary limits. Apparently a similar process accompanies the prolonged ingestion of alcohol as the results of the present study suggest. However, following 90 days of intensive inpatient treatment (and 90 days of sobriety) perception of body size decreases. Alcoholics asked to make size judgments of various body parts at the conclusion of their treatment program showed a significant decline in perceived body size as compared to their pre-treatment estimates. These results indicate a strengthening of body boundaries following a period of intensive treatment.

On the BEQ, alcoholics admit to a significantly greater number of body experiences involving sensations of blocked body openings than do non-alcoholics. In addition, alcoholics check more items referring to feelings of body disgust and loathing than does the control sample. However, following 90 days of intensive treatment there is a significant decline in the number of these and other reported abnormal body experiences. This questionnaire taps the subject's conscious appraisal of his body and his degree of willingness to admit to abnormal or unusual body sensations. It is not surprising that following exposure to intensive group therapy, alcoholics are consciously less critical or less ready to admit to personal defects. The fact that their projective test scores remain unchanged suggests that some residue of their self-depreciatory attitudes remains even after treatment.

Finally, an interesting, although in-

cidental, finding involves the greater frequency of "water" responses in the inkblot test records of alcoholics as compared to controls. The inkblot tests of the alcoholics and controls in the present study were scored for presence or absence of specific references to water. A simple count of such inkblot responses revealed alcoholics to exceed non-alcoholic controls on this scoring dimension. The question as to whether alcoholics can be differentiated from other non-alcoholic groups on the basis of their response to an inkblot test has received considerable attention in the literature, with inconclusive results. Griffith (1961) and Griffith and Dimmick (1949) found alcoholics to score high on water responses, while Marks (1959) could not differentiate alcoholics and controls and Shereshevski-Shere and Lasser (1952) found normals to exceed alcoholics on the Rorschach score. Griffith concluded that: "As the situation now rests, alcoholics perceive more water in Kentucky; in Massachusetts and in Washington they do not." To this list on the affirmative side, Texas may now be added.

Griffith speculated that the inconsistent findings on Rorschach content responses among alcoholics represent geographical differences. He conjectured that persons living near the sea would perceive more water responses than landlocked subjects because of the influence of their surroundings. He argued further that among the landlocked, alcoholics would perceive more water than normals because of an increase in geographical responses representing a flight from the pressures of reality. However, this explanation appears unnecessarily contrived and also assumes that subjects remain fixed as to residence. Results of the present study suggest that alcoholics' water responses play a more dynamic role related to passive and dependent needs.

REFERENCES

- Cleveland, S. E., Fisher, S., Reitman, E. E., & Rothaus, P. Perception of body size in

- schizophrenia. *Arch. Gen. Psychiat.*, 1962, 7, 277-285.
- Fisher, S. Body image and psychopathology. *Arch. Gen. Psychiat.*, 1964, 10, 519-529.
- Griffith, R. M. Rorschach water percepts: A study in conflicting results. *Am. Psychol.*, 1961, 16, 307-311.
- Griffith, R. M., & Dimmick, G. B. Differentiating Rorschach responses of alcoholics. *Quart. J. Stud. Alcohol.*, 1949, 10, 430-433.
- Liebert, R. S., Werner, H., & Wapner, S. Studies in the effect of LSD: Self and object-size perception in schizophrenic and normal adults. *AMA Arch. Neurol. Psychiat.*, 1958, 79, 580-584.
- Marks, J. B. Rorschach water responses in alcoholics. Levels of content analysis and consensual validation. *J. Prop. Tech.*, 1959, 23, 69-71.
- Reitman, E. E., & Cleveland, S. E. Changes in body image following sensory deprivation in schizophrenic and control groups. *J. Ab. & Soc. Psychol.*, 1964, 68, 168-176.
- Shereshevski-Shere, Eugenia and Lasser, L. M. An evaluation of water responses in the Rorschachs of alcoholics. *J. Proj. Tech.*, 1952, 16, 489-495.
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Hostility Themes In The Family TAT¹

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Summary: Three TAT stories based on three cards each were produced conjointly by 126 three-member families. These stories were scored for the relative amount of weighted hostility and the percentage of overt hostility in the themes, based on the Hafner-Kaplan system. There were 50 families with normal children, 44 with emotionally maladjusted, 16 with schizophrenic and 16 with delinquent children. Analysis of the results revealed that the normal and schizophrenic groups produced stories which were low both in weighted hostility and overt hostility, whereas the stories of the families with emotionally maladjusted children were high in both variables. The delinquent-child families scored high in weighted hostility, but close to the normals in overt hostility. The last two sets of TAT cards given were the most effective.

In a recent study (Winter, Ferreira, & Olson, 1965), the authors described a method of assessing family pathology by asking family triads to produce conjointly three TAT stories based on nine cards. These stories were scored by the Arnold (1962) system of Story Sequence Analysis, and the scores obtained were found to differentiate between normal and abnormal families. However, the Arnold scores did not discriminate among the abnormal groups tested.

At that time, we speculated that this lack of discrimination might be due to two factors: (a) The basis used for forming sub-groups of abnormal families, i.e., the diagnosis of the child, might have been invalid, and the sub-groups of abnormals might not, in fact, be different from each other. (b) The nature of the Arnold system may mask real differences among our groups, in that this system is based on the underlying import or emotional meaning of the story, not on how these imports might be expressed in specific

themes. In order to investigate these two possibilities further, it seemed worthwhile to analyze some of the presumably more superficial themes in the stories. We chose themes of hostility, partly because of their theoretical importance and popularity in the literature, and partly because relatively objective methods of measuring hostility themes have been developed (Olson, 1964; Pittluck, 1950).

METHOD

The reader is referred to the original article (Winter, et al, 1965), for a fuller description of the subjects and the testing procedure.

Subjects

The families tested were 126 triads of father, mother, and child. These were divided into four groups, based on the diagnosis of the child: (a) 50 *Normals* (Nor); (b) 44 *Emotionally Maladjusted* (Mal), e.g., neurotics; (c) 16 *Schizophrenics* (Scz); and (d) 16 *Delinquents* (Del).

Procedure

In this part of the research, each family was presented with a set of three TAT cards and instructed to work together to make up a story they all agreed upon, which would link the three cards together in the order in which they were presented, and which would describe what the characters were doing, feeling, etc. The three sets of TAT cards used were: (a) 7GF, 5,

¹This research was made possible by NIMH grant MH06560-01. The authors are indebted to the many organizations and individuals who helped obtain families for this project, particularly the San Jose Adult and Child Guidance Clinic, the Mental Research Institute of Palo Alto, and the Santa Clara County Juvenile Probation Department. Special thanks are due to Jay Haley, Janet Beavin, Earl Jandron, and Robert Clarke for their invaluable aid.

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10; (b) 13B, 4, 3BM; (c) 6GF, 3GF, 18GF. *E* then left the room for five minutes and upon his return, one of the family members, whom they had chosen to be their spokesman, told him the story they had agreed on. The procedure was repeated twice more with new cards and a different spokesman each time. The choice of who would be the spokesman for each story was not related significantly to the diagnosis of the family. In addition, an analysis of the tape recordings taken during the time period when the families were left alone to make up their stories revealed that the percentage of hostile themes suggested by each family member, compared to the percentages of the other two members, was not related to diagnosis, using the deviation from randomness measure of Haley (1964).

Variables and Scoring

The three TAT stories so obtained from each family, as told to *E*, were transcribed and scored for the following two variables by a psychologist who had had no personal contact with the families and did not know their diagnoses:

(1) *Weighted Hostility (Wt Host)*.

The basic score for this variable was obtained from the Hafner-Kaplan (1960) scale for the analysis of hostile content of test protocols. In this scale, specified themes are given weights according to the degree of hostility they represent. For example, themes involving a minimum of hostility, such as guilt, death symbols, or military figures, are scored "1"; on the other hand, themes involving maximum hostility, such as direct physical aggressive acts between people, are given the maximum weight of "4". However, for our study this Hafner-Kaplan hostility score appeared to require a correction, since the longer the story, the greater the opportunity for hostile (or other) themes to be introduced. Therefore, the sum of the Hafner-Kaplan scores was corrected by dividing the total number of

words used in the telling of the story, to obtain *Wt Host*, expressed as a percentage. ($Wt Host = \frac{\text{Total Hostility}}{\text{Total words in Story}} \times 100$)

(2) *Percentage of Overt Hostility (% Overt)*. The Hafner-Kaplan scale scores themes not only for degree of hostility, but also as to whether they represent either overt or covert hostility. For example, of the themes receiving a weight of "4" for hostility, those involving fighting and assault are scored as overtly hostile, while those involving suicide or self-injury are scored as covertly hostile. The % Overt hostility consists of the number of overtly hostile themes divided by the total of the overt plus covert themes

($\% Overt = \frac{\text{Overt Hostility Themes}}{\text{Total Hostility Themes}} \times 100$). Both *Wt Host* and % Overt were based on all three stories combined.

Hypotheses

The hypotheses corresponding to these two variables were that, compared to abnormal families, normal (Nor) families would manifest: (a) lower *Wt Host*, and (b) lower % Overt hostility.

These two hypotheses were based on the reported findings of several researchers that more severely disturbed families express more antagonism and hostility (Caputo, 1963; Farina, 1960, Ferreira, 1963); and that disturbed individuals tend to express more overt or unmodified aggression (Gottschalk, Gleser, and Springer, 1963; Haskell, 1961).

Statistical Analysis

The significance of the differences between groups of normal and abnormal families was evaluated by analysis of variance and subsequent one-tailed *t*-test. Due to the unbalanced ratio of male to female children in the Del group, two different statistical analyses were computed. For the first, the Del group was omitted, and a two-way analysis of variance, with

sex of the child as the second variable, was performed for the Nor, Mal, and Scz families, using a computer program which allowed for proportional numbers of cases in the cells. For the second, a simple analysis of variance was computed for all families with male children in our sample. Preliminary analysis of variance indicated that the age of the child was not a significant variable.

RESULTS

(1) *Wt Host*. The combined results for the two analyses of variance are given in Table I. As can be seen from this table, *Wt Host* significantly differentiated the four diagnostic groups on both analyses. No sex or interaction effects were obtained.

A comparison of the means of the four groups by one-tailed *t*-tests revealed no significant differences between the Nor and Scz groups on either analysis of variance (both *ts* < .70). However, comparing the families with Male children alone, using the one-way analysis data, we find that the Nor families scored significantly lower in *Wt Host* than did the Mal ($t=2.72$, $p<.003$) and the Del families ($t=2.55$, $p<.005$, $df=84$). Similarly, for the two-way data combining male and female children, the Nor families had lower *Wt Host* scores than did the Mal families ($t=4.08$, $df=104$, $p<.0001$). Two-tailed *t*-tests for the male children showed that the Scz families also scored lower than the Mals ($t=2.41$, $p<.02$) and the Dels ($t=2.38$, $p<.02$), and for all children the Sczs scored lower than the Mals ($t=3.72$, $p<.0002$). To summarize, the Mal and Del groups produced stories with significantly greater weighted hostility than did the Nor and Scz groups, a finding which partially supports the hypothesis.

It was decided to examine also whether any of the three TAT stories by itself differentiated these diagnostic groups, when scored for *Wt. Host*. Since no effects attributable to the sex

Hostility Themes in the Family TAT

TABLE I—Analyses of Variance Data for Weighted Hostility

| Child's Sex | Nor | Mal | Scz | Del |
|------------------|-----|-----|-----|-----|
| Male \bar{X} | 6.3 | 8.5 | 5.8 | 8.8 |
| σ | 3.0 | 2.6 | 3.0 | 4.7 |
| Female \bar{X} | 6.5 | 9.8 | 5.8 | |
| σ | 2.4 | 3.6 | 2.7 | |

- (a) Two-way analysis of variance (Nor, Mal, Scz)
 F Diagnosis = 12.28 $df=2/104$ $p<.005$
 F Sex = 0.60 $df=1/104$ NS
 F Interaction = 0.52 $df=2/104$ NS
- (b) One-way analysis of variance (all males)
 F Diagnosis = 4.30 $df=3/84$ $p<.01$

TABLE II—Analyses of Variance Data for Percentage of Overt Hostility

| Child's Sex | Nor | Mal | Scz | Del |
|------------------|------|------|------|------|
| Male \bar{X} | 24.6 | 30.4 | 18.1 | 26.3 |
| σ | 17.8 | 16.8 | 15.7 | 19.9 |
| Female \bar{X} | 20.9 | 34.3 | 21.7 | |
| σ | 12.2 | 14.9 | 21.2 | |

- (a) Two-way analysis of variance (Nor, Mal, Scz)
 F Diagnosis = 4.83 $df=2/104$ $p<.01$
 F Sex = 0.12 $df=1/104$ NS
 F Interaction = 0.64 $df=2/104$ NS
- (b) One-way analysis of variance (all males)
 F Diagnosis = 1.39 $df=3/84$ NS

of the child had been found, all families in each group were combined and a one-way analysis of variance for each story was computed. Briefly, the first story did not discriminate among the four groups, but the second ($F=5.52$, $p<.01$) and third ($F=3.35$, $p<.05$, $df=3/122$) did. However, since each family received the three sets of TAT cards in the same order, it is not possible to determine whether these last two sets were more effective because of the stimulus characteristics of the cards they contained, or because they were given later in the series.

Incidentally, the same *F* tests were computed using the total number of scorable hostile themes (unweighted) divided by the number of words in the story. The Hafner-Kaplan weights used in *Wt Host* seem to improve the differentiation among groups slightly, although the results for both variables were quite similar. For example, the one-way analysis of variance *F* for all male children using the unweighted

themes was 3.81; using the weighted themes it was 4.30. We would suggest, therefore, that the standard weights be used in future research.

(2) % *Overt*. The data for both analyses of variance can be found in Table II. This variable did significantly differentiate the Nor, Mal, and Scz total groups in the two-way analysis, but did not differentiate all four groups (male children only) in the one-way analysis. In the former set of data, one-tailed *t*-tests revealed no significant differences between the Nor and Scz families, but the Nors did show a significantly lower percentage of overtly hostile themes than did the Mals ($t = 2.47$, $df = 104$, $p < .007$). For the male children only, adding the Del families into the analysis of variance produced overall results which were not significant. The Del families with male children scored almost the same as the Nors, and both of these groups were intermediate between the high-scoring Mals and low-scoring Sczs. It is only between these latter two extreme groups of Mals and Sczs that a significant difference is obtained ($t = 1.97$, $p < .05$, 2-tail). The hypothesis seems clearly supported only with regard to the difference between Nor and Mal families.

The first two stories, when analyzed individually, failed to differentiate the groups. However, a significant *F* value was found for the third story, following the procedure outlined previously ($F = 6.83$, $df = 3/122$, $p < .005$).

DISCUSSION

These results partially confirm both hypotheses. In general, the Nor and Mal families behaved according to expectations, but the Scz and Del families did not. It would be inappropriate, therefore, to treat the Mal, Scz, and Del families as a homogeneous group. Our data indicate that the Mals produced TAT stories which were more hostile in content and with themes which were more "overtly" hostile than did the Nors. Within the context of this specific testing situa-

tion, it would appear that the Mal families produced thematic material indicating that their motivational systems and fantasies are heavily imbued with hostile preoccupations which are somewhat primitive and outwardly directed in nature.

Perhaps our most surprising finding is that the Scz families produced stories with the least weighted hostility and least overt hostility present in the themes, thus differing markedly from the Mal families. The reasons for this difference are not clear. To say that these families are truly not hostile would not seem to conform with clinical experience. Therefore, we are led to assume that their hostility is either far removed from the level of explicit expression, or that it is conveyed in ways too subtle to be detected by our scoring system, or that these families avoid the expression of emotional antagonism by confining themselves to non-revealing stories as an expression of family effort to disengage emotionally when a strong negative feeling threatens to come forth.

The Del group seems least clearly defined. Their stories have the highest scores for weighted hostility of any group, when male children are compared. However, their percentage of overt hostility is close to that of the Nors. Compared to the Mals, the hostile themes of the Dels is somewhat more covert in nature, which does not seem consistent with the overtly aggressive behavior which was the basis of the child's diagnosis. This discrepancy is worth further investigation. Perhaps this pattern does reflect a stable characteristic of the Del family triad. But another explanation suggests itself in the possibility that these families may be trying to give a good impression to E, as a way of offsetting their recent encounter with the law. It is not clear what personality characteristics and situational variables are affecting the unexpected responses obtained from the Scz and Del groups.

These findings seem particularly interesting when taken in conjunction

with the scoring of these same stories by the Arnold system of Story Sequence Analysis (Arnold, 1962), which evaluates the overall pathology of the basic theme or import of the story. As reported above, the Arnold scores of the three abnormal groups do not differ from one another, but all three score as more pathological than the normals (Winter, et al, 1965). Since the present results indicate that the Hafner-Kaplan scales do differentiate the three abnormal groups of families, our conclusion is that our groups do, in fact, differ, and that our previous results were due to the nature of the Arnold scoring system. Our interpretation of our findings in both studies is that the basic value systems and ways of viewing the world of the Mal, Scz, and Del groups are equally abnormal, but the manner in which they express hostility differs.

The use of projective tests to study families as units is a relatively new area, for which there is as yet little relevant literature. It is expected that further research along these lines will lead to a more effective use of the family TAT as a diagnostic instrument. Hopefully, the development of multiple objective TAT scores will enable us to assess families along several other meaningful dimensions, such as general pathology, specific value systems, patterns of expressing positive and negative needs, etc. The fact that we were able to obtain significant discriminations among groups of families using only three TAT

stories speaks well both for these methods of administering and scoring the TAT and also for the diagnostic criteria used to separate the families.

REFERENCES

- Arnold, Magda. *Story Sequence Analysis*. New York: Columbia Univ. Press, 1962.
- Caputo, D. The parents of the schizophrenic. *Fam. Proc.*, 1963, 2, 339-356.
- Farina, A. Patterns of role dominance and conflict in parents of schizophrenic patients. *J. abnorm. soc. Psychol.*, 1960, 61, 31-38.
- Ferreira, A. Rejection and expectancy of rejection in families. *Fam. Proc.*, 1963, 2, 235-244.
- Gottschalk, L., Gleser, G., and Springer, K. Three hostility scales applicable to verbal samples. *Arch. gen. Psychiat.*, 1963, 9, 254-279.
- Hafner, J. and Kaplan, A. Hostility content analysis of the Rorschach and TAT. *J. proj. Tech.*, 1960, 24, 137-144.
- Haley, J. Research on family patterns: an instrument measurement. *Fam. Proc.*, 1964, 3, 41-65.
- Haskell, R. Relationship between aggressive behavior and psychological tests. *J. proj. Tech.*, 1961, 25, 431-440.
- Olson, J. Differentiation of clinical and normal families via thematic apperception test analysis. Unpublished M.A. dissertation, San Jose State College, 1964.
- Pittluck, P. The relationship between aggressive fantasy and overt behavior. Unpublished doctoral dissertation, Yale Univ., 1950.
- Winter, W., Ferreira, A., Olson, J. Story Sequence Analysis of family TATS. *J. proj. Tech.*, 1965, 29, 392-397.
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A Failure in the Discrimination of Aggressive Behavior of Undifferentiated Schizophrenics with the Hand Test

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Summary: The study represents an attempt to cross-validate an American experiment in the discrimination of aggressive from nonaggressive behavior on the basis of the Acting Out Score and the Withdrawal Score of the Hand Test. The subjects were 66 undifferentiated schizophrenics in an English state mental hospital. They were rated as aggressive (A) or nonaggressive (NA) according to certain definite criteria. The distribution of numbers, sexes, and ages approximated closely to those in the earlier study. Whereas the results of the American experiment successfully discriminated between aggressive and nonaggressive schizophrenics, the results of the present study were notably similar for both A and NA groups.

Wagner and Medvedeff (1963) reported a successful experiment in separating aggressive (A) from nonaggressive (NA) undifferentiated schizophrenics at the Apple Creek State Hospital, Apple Creek, Ohio on the basis of certain Hand Test indicators. The present study is a repeat experiment on a similar group of English patients.

The Instrument and the Variables

The Hand Test (Bricklin, Piotrowski, and Wagner, 1962; Wagner, 1962) consists of a series of ten cards. On nine of these a hand is drawn, while the tenth is a blank card. The hands are depicted in different ambiguous poses, and the task is to state what each hand might be doing. Each response is allocated to one of 14 scoring categories; the category Failure (FAIL) is used when no scorable response is given to a card. These categories may be combined to form more complex classes. The present and the previous study were mainly concerned with two variables, the Acting Out Score and the Withdrawal Score.

1. The Acting Out Score (AOS) is obtained by subtracting algebraically the sum of the responses in the categories AFFECTION ("Interpersonal responses involving an interchange or bestowment of pleasure, affection or friendly feeling." [Wagner, 1962, p.5]), DEPENDENCE ("Interpersonal responses

involving an expressed dependence on or need for succor from another person." [Wagner, 1962, p.5]), and COMMUNICATION ("Interpersonal responses involving a presentation or exchange of information." [Wagner, 1962, p.5]) from the sum of the responses in the categories DIRECTION ("Interpersonal responses involving influencing the activities of, dominating, or directing others." [Wagner, 1962, p.5]) and AGGRESSION ("Interpersonal responses involving the giving of pain, hostility, or aggression." [Wagner, 1962, p.5]). It is hypothesized in both studies that an AOS of +1 or over indicates "... some aggressive proclivities." (Wagner and Medvedeff, 1963, p. 111).

2. The Withdrawal Score (WITH) is the sum of the scores for the categories DESCRIPTION ("Subject can do no more than acknowledge the presence of the hand with perhaps a few accompanying inconsequential descriptive details or feeling tones." [Wagner, 1962, p. 6]), BIZARRE ("A response predicated on hallucinatory content, delusional ideation or other peculiar, pathological thinking. The response partially or completely ignores the drawn contours of the hand and/or incorporates bizarre, idiosyncratic, or morbid content." [Wagner, 1962, p.6]), and FAILURE. It is hypothesized in both studies that a WITH score of +1 or over is a counterindication of aggression.

METHOD AND SUBJECTS

Wagner and Medvedeff Study

In the study of Wagner and Medvedeff the subjects, who were inpatients of an Ohio mental hospital, were rated as A and NA by attending psychiatrists and ward sisters. Only when there was agreement between both psychiatrist and nurse on a patient's designation was the protocol finally included. The assessment was made on the basis of the following criteria:

1. Aggressive behavior:
 - a. Record of hostile acts against staff, or other patients.
 - b. Destruction of property.
 - 1) tearing bedclothes.
 - 2) breaking dishes; throwing food.
 - 3) tearing personal clothing.
 - c. Attempts to escape.
 - d. Verbal abuse of staff or other patients.
 - e. Refusal to take medication.
 - f. Refusal to work when able.
2. Non-aggressive behavior:
 - a. Generally passive.
 - b. Cooperative with patients and staff.
 - c. Willing worker.
 - d. No record of willful destruction (1963, p. 112).

The Hand Test protocols were scored by a graduate student who had no knowledge of the patients' designation or of the experimental hypothesis.

English Study

In the present study the subjects were inpatients of a psychiatric hospital on the outskirts of London. Nothing was known about them by the tester except that they had been clearly diagnosed as schizophrenics. A hundred and thirteen were tested on the Hand Test under standardized conditions on their own wards. Their records were then scored. A few were unscorable because they were unfinished, or because the patient's speech had been unintelligible. Any which contained a response the scoring of which was doubtful, and which would also have had an effect on the AOS and/or WITH score was also discarded. An attempt was made to ob-

tain ratings as A or NA by psychiatrists and nurses, but this was found to be unsatisfactory as a result of staff mobility. It was, accordingly, decided to consult the case notes after all the protocols had been scored. All acts of personal aggression and destruction of property are as a matter of course recorded in the case notes.

The same criteria of nonaggressive behavior were used as in the Wagner and Medvedeff study. To avoid the inclusion of any doubtful cases the A group was restricted to those who had used physical violence against a person, or had tried to damage an object (Criteria 1. a. and b. of the Wagner and Medvedeff study). No cases of attempted suicide or self-mutilation were included in the NA group, but they were admitted to the A group if they satisfied the criteria for aggressive behavior. In rating behavior from the case notes the circumstances of the patient's admission(s) to the hospital and his conduct in the five years prior to testing were considered. To be assigned to the NA group a patient had to satisfy the criteria for nonaggressive behavior throughout; only those patients who had been aggressive in terms of the present study during the past five years were allocated to the A group. As well as the patients who did not satisfy the criteria for one or other of the groups all cases in which there was reason to believe there might be an organic element were eliminated. Among others epileptics, leucotomised patients, and those who had recently had electroconvulsive therapy were dropped from the sample. After all the requirements had been fulfilled 66 remained in the study.

DISTRIBUTION OF NUMBERS, SEXES, AND
AGES, AND LENGTH OF STAY
IN HOSPITAL

The distribution of numbers, sexes, and ages in the English and American studies are given in Table I. In the English experiment a *t* test for differences in mean ages and an *F* test for

differences in variability were both nonsignificant at the .05 level of confidence ($t = 1.895$; $F = 1.15$). In the NA group the mean length of stay in hospital was 9.58 years with an S.D. of 9.67 years. The mean length of stay for the A group was 7 years with an S.D. of 5.25 years. A t test for the differences in the mean length of stay was nonsignificant at the .05 level of confidence ($t = 1.31$)

RESULTS

The comparative figures for the A and NA groups on the AOS are given in Table II. The result was nonsignificant at the .05 level of confidence. In the A group the AOS ranged from -7 to +5; in the NA group the variation was from -6 to +5. The AOS gave correct classification in 50% of the cases (compared with 67% in the American study).

In interpreting the WITH score it is possible, as in the Wagner and Med-

vedeff study, to take a WITH score of 0 as a positive, and a WITH score of +1 or more as a negative, indication of aggression. The comparative figures for the A and NA groups on the WITH score analysed in this way are given in Table III. The result was nonsignificant at the .05 level of confidence. The WITH score permitted a correct allocation in 45% of cases (compared with 71% in the American study).

Although it seems reasonable to regard a WITH score of +1 or above as a negative sign of aggression if it is taken to reflect "... a dampening of behavior tendencies, aggressive or otherwise," (Wagner & Medvedeff, 1963, p. 111) there appears to be little ground for assuming that a WITH score of 0, irrespective of the content of the record, is other than a neutral sign of aggression. When the WITH scores of +1 or more were examined independently the result was nonsig-

TABLE I—Distribution of Numbers, Sexes, and Ages

| Item | Present study | | American study | |
|-----------|---------------|----------|----------------|----------|
| | A group | NA group | A group | NA group |
| Numbers | | | | |
| Men | 19 } 36 | 15 } 30 | 21 } 35 | 18 } 35 |
| Women | 17 } | 15 } | 14 } | 17 } |
| Ages | | | | |
| Age range | 20 to 58 | 25 to 58 | 20 to 57 | 20 to 51 |
| Mean age | 37.11 | 41.93 | 37.57 | 37.14 |
| S.D. | 9.90 | 10.62 | 11.54 | 7.30 |

TABLE II—Acting Out Score

| Group | AOS ≤ 0 | AOS $\geq +1$ | Total |
|---------------------------|--------------|---------------|-------|
| Aggressive (N = 36) | 19 | 17 | 36 |
| Nonaggressive (N = 30) | 16 | 14 | 30 |
| Both groups | | | 66 |

$\chi^2 = .04$; $p > .05$; $\phi = .02$ (In the Wagner & Medvedeff study " $\chi^2 = 7.06$; $p < .01$; $\phi = .33$." [1963, p. 112])

TABLE III—Withdrawal Score

| Group | WITH = 0 | WITH $\geq +1$ | Total |
|---------------------------|----------|----------------|-------|
| Aggressive (N = 36) | 14 | 22 | 36 |
| Nonaggressive (N = 30) | 14 | 16 | 30 |
| Both groups | | | 66 |

$\chi^2 = .15$; $p > .05$; $\phi = .05$ (In the Wagner & Medvedeff study " $\chi^2 = 12.87$; $p < .001$; $\phi = .43$." [1963, p. 112])

nificant at the .05 level of confidence ($\chi^2 = .95$) (compared with $\chi^2 = 7.53$ [$p < .01$] if the results of the Wagner and Medvedeff study are submitted to a similar analysis). In the NA group the highest WITH score was +9, while in the A group one patient achieved a WITH score of +12. In all, 57% of patients in the English experiment obtained WITH scores of +1 or more (compared with 49% in the American study). Of those obtaining WITH scores of +1 or more 42% were nonaggressive (compared with 74% in the previous study).

DISCUSSION

No obvious explanation offers itself as to why the results of the present study fail to confirm those of Wagner and Medvedeff. Both English and American groups were institutionalized undifferentiated schizophrenics in state mental hospitals, although the length of stay of the American patients is not known. Testing and scoring were in both cases carried out without the knowledge of the patients' ratings on aggression. The classificatory procedure differed in the present and the previous study, but there is no reason to suspect that misclassification should have occurred in either. The criteria for non-aggressive behavior were the same in both studies. The criteria for aggressive behavior were more stringent in the English than in the American study, and, hence, differences between A and NA groups in the present study might have been expected to be greater and not smaller than in the previous. In the English study the patients' intelligence ranged from Dull Normal to Very Superior (terms used as by Wechsler), and their education varied from nine years of compulsory schooling to M.A. degree level. Within this study these factors had no obvious influence on the direction of the results. All the patients were on some kind of medication, and the effects of this are uncertain. However, in the few cases (all outside the present sample)

where the author has tested a patient at intervals under different amounts and/or kinds of medication the sign of the AOS has remained unchanged; the FAIL scores have been much less stable.

Because of the absence of any significant results for the AOS and the WITH scores a more thorough analysis of the results was made in the hope that some differentiating pattern might emerge. The scores of the A and the NA groups were compared on all the 15 categories. It was hypothesized that the A groups might be more impulsive, and that this might be reflected in a faster Average Initial Response Time (AIRT). A hypothesis was also put forward that the A group might be more erratic, and might be distinguished by the greater High Minus Low (H-L) score (computed by subtracting the lowest initial response time from the highest).

The average number of responses for the A group was found to be 9.46, that for the NA group 9.94. The A group had an average of 1.08 FAIL scores, while the corresponding number for the NA group was 0.76. The A group had 6% of responses in the DES category, whereas 9.47% of NA responses fell into this category. In the A group BIZ responses accounted for 4.57% of the total, and in the NA group for only 0.97%. It was not, however, possible to differentiate between aggressive and nonaggressive patients on the basis of the DES and BIZ scores. Outside the WITH class there was no category where the two groups differed by as much as 2%. The differences in the AIRT means were nonsignificant at the .05 level of confidence ($t = 1.21$). The differences in the mean H-L scores were also nonsignificant at the .05 level of confidence ($t = 1.49$). In general what the results did seem to emphasize was not the differences but the striking similarities between the A and NA groups.

Further research is being carried out at Cane Hill Hospital on the Hand

Test and more positive results appear to be forthcoming on nonschizophrenic patients. Since it is in the very nature of their disorder for schizophrenics to be unpredictable in their behavior, it is perhaps not surprising that the results of the present study have not proved significant.

REFERENCES

Bricklin, B., Piotrowski, Z., & Wagner, E.
*The Hand Test: a new projective test with
special reference to the prediction of overt*

aggressive behavior. Springfield, Ill.: Charles
C. Thomas, 1962.

Wagner, E. *The Hand Test: manual for ad-
ministration, scoring, and interpretation.*
Akron, Ohio: Mark James, 1962.

Wagner, E., & Medvedeff, E. Differentiation
of aggressive behavior of institutionalized
schizophrenics with the Hand Test. *J. proj.
Tech.*, 1963, 27, 111-113.

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Received August 9, 1965

Revision received February 7, 1966

Relationship Between Social Desirability Scale Value and Probability of Endorsement for Responses in Social Situations¹

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Summary: Sixty-nine responses to the cartoons in the Rosenzweig P-F Study were shown separately to two groups. One group of 97 Ss rated each response on a 9 point scale of social desirability; a second group of 113 Ss indicated whether or not they themselves would make the response. The ratings on social desirability of the 69 responses were highly reliable. Secondly, there was a significant positive correlation between the social desirability scale value of a response and the per cent of Ss saying they would make that response. It is concluded that, as with items in personality tests, responses in social situations can be reliably evaluated in terms of social desirability and that such evaluations are associated with the probability of endorsement of these responses.

Edwards (1957) has stated that the tendency to give socially desirable (SD) responses in self-description, as measured by the Social Desirability Scale, is a general trait reflected in scores on a wide variety of True-False personality scales; and there is considerable evidence (Edwards, Diers, & Walker, 1962) to show that the probability of a True response to a personality item can be predicted quite accurately from the knowledge of the SD scale values of the items.

The present study uses responses attributed to other people in social situations rather than personality items, and investigates the relationship between the SD scale values assigned by subjects to these and the probability that such responses will be endorsed by subjects as ones which they themselves would be likely to give in such situations. Since responses actually made in social situations can be observed by others, the establishment of SD as a dimension for describing such responses will provide a basis

for relating observed social behavior to a person's description of that behavior.

METHOD

Ss were shown 69 cartoon-like pictures depicting 23 different situations. In each situation one person was shown as making a statement and a different person was shown as having made a reply to that statement. One group of Ss rated individually each reply on the basis of the social desirability of the reply in the situation shown. A second group of Ss classified individually each reply on the basis of whether or not they themselves would be likely to give such a reply in the situation.

The cartoons and the statements by the first person were all those in the Rosenzweig P-F Study Booklet, Form for Adults, with the exception of the first cartoon which was used as a sample. The replies were selected from those given in the manual for this material (Rosenzweig, Fleming, & Clarke, 1947) as examples scorable as intropunitive (I), extrapunitive (E), and impunitive (M). From each of these 3 categories, 23 replies, one for each cartoon, were selected by two judges as representing clearly the scoring category. Three sets of the 23 cartoons, producing a series numbered 1 to 69, were used. The reply in each cartoon was typed in the space in each

¹The authors are indebted to Mrs. Hildagund Holloway who assisted in the collection and analysis of the data. Also, they wish to express their appreciation to the Western Research Support Center, V. A. Hospital, Sepulveda, California, for programming and performing the computer processing of the data.

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cartoon provided for this. The sequence used for the presentation of the cartoons was that given in the booklet and was repeated 3 times without interruption. Each time an equal number of the 3 categories of replies, in a random sequence, was used in so far as possible. The series of 69 cartoons was presented once.

Ss were tested in groups ranging in size from 5 to 53 depending upon their availability. The cartoons were individually mounted and projected one at a time on a screen before the group by an opaque slide projector. Sufficient time was always allowed for all Ss in a group to complete their responses for each cartoon, and this time varied from about 5 to 10 secs.

Ss who rated the replies on social desirability were given answer sheets which described the 9 point rating scale used. On this scale, the number 5 indicated neutral, the numbers 1 and 9 indicated extremely undesirable and desirable respectively; and the intermediate numbers were described on S's answer sheets with the adjectives "mildly", "moderately", "strongly", and "extremely" in this order and in both directions from neutral. Practice in the use of this scale was given, and they were instructed to give a scale value for each numbered cartoon in spaces provided for these on the answer sheet.

Ss who indicated whether or not they would be likely to give the replies were given answer sheets with instructions to mark for each numbered cartoon, "True", if the reply shown was one which they themselves were likely to give in the situation shown; "False", if it were not; and a question-mark if they were in doubt. They were encouraged to mark each reply and to avoid using the question-mark for an answer.

Ninety-seven Ss (40 male and 57 female) were in the group which rated each reply on the SD scale. They were students in extension courses and student nurses. All were high school graduates. A second and different

group of 113 Ss (48 male and 65 female) indicated whether or not they themselves would give the replies. These were all students in undergraduate psychology courses.

RESULTS AND DISCUSSION

For each of the 69 responses two measures were computed. The first measure was the mean of the ratings on SD assigned by subjects in the group which rated these responses on a 9-point scale, and this measure will be referred to as the SD scale value of the responses. These scale values are summarized in Table 1.

TABLE 1—Description of the Group of 69 Responses on the Measures Obtained

| Measure | Mean | Range | σ |
|--------------------------------|-------|-------------|----------|
| SD Scale Value | 5.82 | 1.12 - 8.29 | 2.04 |
| Per Cent of Subjects Endorsing | 43.71 | 0 - 98.23 | 26.16 |

The second measure for each of the responses was the per cent of Ss endorsing the response as one which they themselves would likely make in the situation depicted in the cartoon containing that response. These values were obtained from a second group and are also summarized in Table 1.

The main results are those which pertain to the reliability of the SD scale values assigned to the responses and the correlation between these scale values and the percentages of Ss endorsing the responses. To evaluate the reliability of the SD scale values the Ss were grouped in a random order according to sex and then assigned consecutive numbers within these two sub-groups. SD scale values for each of the 69 responses were computed for the following groups: odd numbered males, even numbered males, odd numbered females, even numbered females, all males, and all females. The odd-even correlation of the SD scale values was .96 for males, .98 for females; and the average odd-even correlation for the com-

TABLE II—Mean Values on the Two Measures and Their Correlation for Extrapunitive (E), Impunitive (M), and Intropunitive (I) Responses

| Classification | Measure S.D. Scale Value | Per Cent Endorsement | Correlation r |
|----------------|-----------------------------|-------------------------|------------------|
| E | 2.83 | 29.7 | .76 |
| M | 6.72 | 53.0 | .85 |
| I | 6.42 | 48.4 | .46 |

bined male and female group was .97. The correlation between the SD scale values assigned by the total male group and those assigned by the total female group was .96. There is considerable agreement among Ss therefore in judging the SD of responses.

On a second measure, per cent of Ss endorsing each of the responses, the percentages endorsing the items computed for just the male sub-group correlated .90 with those obtained from the female sub-group. On this measure also there is substantial agreement among Ss. Since either measure may be interpreted as a criterion for SD, the correlation between these two measures was next examined. The correlation between the SD scale values and the per cent endorsement for the 69 items was .54 for males and .71 for females; and .65 for both groups combined. All of these correlations are significantly³ greater than zero, and the conclusion is that Ss tend to endorse the responses which are rated socially desirable. Although positive, the correlations are not high and it is clear that with the responses used, the criterion measure used is a critical factor in interpreting SD.

Finally, the 69 responses were selected from the three main classifications of responses in the Rosenzweig P-F Study, namely, extrapunitive, intro-punitive, and impunitive, with 23 responses in each classification. The mean values on the two measures used in this study and the correlation be-

tween these for each of these classifications are shown in Table II.

On both measures the group of E responses differed significantly from the responses classified as I and M, with the difference between the latter two classifications not significant. For all three classifications the correlations between the two measures are positive and significantly greater than zero. The correlation between the two measures, however, is significantly greater for both E and M responses than it is for I responses, a result which indicates that content or type of response is a factor to be considered in the selection of the criterion for SD.

The primary purpose of this study was to evaluate SD as a dimension for describing responses in social situations. With the sample of responses used, the results indicate that such a description can be made reliably by Ss. The implication of these results is that SD provides one measure for comparing a S's description of his behavior when interacting with other persons and his behavior as observed by others.

REFERENCES

- Edwards, A. L. *The social desirability variable in personality assessment and research*. New York: Dryden, 1957.
- Edwards, A. L., Diers, C. J., & Walker, J. N. Response sets and factor loadings on sixty-one personality scales. *J. appl. Psychol.*, 1962, 46, 220-225.
- Rosenzweig, S., Fleming, E. E., & Clarke, H. J. Revised scoring manual for the Rosenzweig Picture-Frustration Study. *J. Psychol.*, 1947, 24, 165-208.

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Received December 24, 1965

³Fisher's r to z transformation was used for evaluating the significance of all correlation coefficients and the differences between these. In group comparisons, "t" tests were used. The .05 level was used with all measures.

The Representation of the Body Self in Human Figure Drawings¹

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Summary: The matching of 25 frontal drawings of the female human figure with 25 frontal photographs of the college women who drew the figures was attempted by 30 male graduate psychology students and 30 women religious graduate students of art. The drawings and photos were arranged in envelopes according to a balanced lattice design, and presented to each of the judges in different envelopes in an order determined by randomized latin squares. Both groups matched the drawings with the photographs of the same Ss at significantly higher than chance expectancy ($p < .01$). These findings suggest that this matching technique may be of some value in testing the hypothesis of objective body self projection in human figure drawings.

Clinicians frequently interpret the drawing of the human figure as indicating a direct projection of the body self or body image. However, there is as yet little experimental support for this hypothesis. Swensen (1957) in his review of the figure drawing technique described the study of Berman and Laffal (1953) as being most relevant to the body image hypothesis. Using Sheldon's (1954) body types (somatotypes) as categories, and utilizing a psychiatric sample, they rated both the patient's body and the figure drawing and reported obtaining a low but significant correlation between the two. However, the significance of the correlation was questioned by Silverstein and Robinson (1961), who re-analyzed the data. Silverstein and Robinson (1956, 1961) conducted a series of studies leading them to question the assumption of the body image being directly reflected in the figure drawings. They reported negative results in their attempt to differentiate orthopedically disabled children from controls through either a sign or global approach. They were also unable to find any positive correspondence between the actual heights of sixth grade children and the heights of drawn figures.

In contrast to these studies yielding negative results are two that suggest some discriminating power of the figure drawing technique. The studies do not, however, clearly indicate whether the effectiveness of the figure drawing technique is related to the projection or representation of the body image in the drawing. Schmidt and McGowan (1959) found that groups of both trained and untrained judges were able to distinguish figures drawn by physically disabled and physically normal persons. They doubted, however, the hypothesis that drawings are simple projections of self-image, and that handicaps are reflected in any direct way. Following Machover (1953), they concluded that drawings had to be analyzed in terms of the total personality. Johnson and Wawrzaszek (1961) also found that a group of psychologists could discriminate drawings of physically handicapped children from the drawings of normal children. The psychologists made their judgments on the basis of drawings of a house and tree as well as the person drawing. They presented evidence suggesting that judges were actually judging on the basis of the Goodenough Mental Age of the person drawing. They also present evidence suggesting that some of the judges sorted the two groups on the assumption that the physically handicapped persons would reveal more

¹A version of this paper was presented at the meeting of the Eastern Psychological Association, Atlantic City, New Jersey, on April 24, 1965.

signs of emotional disturbance in the drawings.

Studies investigating the body self projection are difficult to interpret, since there is as yet no clearly acceptable criterion of the body self. In the absence of a widely accepted criterion, some investigators have used, as criteria, single dimensions of the body, such as height, and others have used somatotypes. The use of single dimensions appears to be based on the assumption that such isolated dimensions of the body self may be studied without considering their relation to the total body configuration. The procedure, though of some value in the study of common bodily characteristics from the nomothetic viewpoint, may not be of optimal value in the investigation of the unique body self. In contrast to the single dimension approach, the somatotype approach does give more emphasis to the configurational aspects of the body. However, it cannot, because of the limited number of somatotypes in Sheldon's system, give emphasis to the unique body self. The most common female somatotype according to Sheldon is 533. If the straightforward somatotype approach, exemplified by Berman and Laffal, were used, the body self criterion of all subjects within the above classification would be the same, even though they might differ noticeably in posture, facial expression and other aspects of their bodies. Apfeldorf (1953) has suggested that a way of studying the body self as a unique configuration is through the use of a photograph of the subject himself. If the body self is dependent on the subject's experience of his own unique objective body, which is the same experience that any impartial observer might have in looking at the subject's body, then the subject's photograph might be used as a referent for the body self.

Apfeldorf (1953) found that judges were able to match the profile drawings of unselected college students

with the photographs of these students on an above chance basis. However, the number of drawings in the sample was small (16), limited to profile drawings, and further investigation appeared necessary to determine whether such matching success would be found in another sample.

METHOD

In order to determine whether the unique body configuration would be represented in figure drawings, the procedure used in Apfeldorf's original study, the matching of figure drawings and photographs, was applied to a new group of students. All students taking elementary psychology at The Catholic University of America were selected as possible subjects. These classes consisted mainly of female undergraduate students along with a small number of male students, and some brothers and nuns. Though the figure drawing and photographic procedures were applied to all in the classes, so that the students would not be aware of any distinctions as to subjects, only the drawings and photos of the non-religious group, considered a more representative student group, were to be used in the study.

The drawings were obtained through group instructions. Each student in the class was given a blank sheet and a sheet of instructions which read:

"You are to draw a person. Draw as good a person as you can. Draw any kind of person you like but be sure to make all of it, not just the head and shoulders. Artistic ability or talent are not necessary. Just do the best you can. When you are finished, write your name on the back of the sheet, and the number '1' to indicate that this is your first drawing. Bring the drawing to the desk and obtain another sheet."

A week later all students in the classes were photographed in both the frontal and profile position with an Argus FA camera from a distance of

about twelve feet. Prints were enlarged to $2\frac{2}{3} \times 4$ inches.

Drawings and corresponding photos were obtained from 52 nonreligious women students. In thirteen of these drawings, a man had been drawn instead of a woman. These drawings were excluded from further analysis since the task of pairing a man drawing to a woman photo would appear to present greater problems to matchers than would a sample of woman drawings and corresponding woman photos. Of the remaining 39 drawings of a woman, 33 first drawings showed the female figure in the frontal position and four in the profile position. Two drawings showed signs of resistance or poor cooperation, one drawing being a stick figure, the other drawn on the instruction sheet rather than on the blank sheet. Since the majority of first drawings were frontals, it was decided to have judges match these.

Matching studies present many methodological difficulties. It was therefore decided to use in this study the design used in the previous study (Apfeldorf, 1953) in which all the drawings and photos were arranged in envelopes according to a balanced lattice design, and presented to each of the judges in different envelopes in an order determined by randomized latin squares. The design allows for the assessment of the role of such sources of variation as order of presentation of envelopes, difference between judges, difference between envelopes, and difference between replications.

The design does require that the number of drawings be an exact square, in this case requiring exactly 25 of the 33 drawings. Accordingly, eight drawings were randomly excluded.

Two groups of students attending The Catholic University of America were given the task of matching the drawings and photos. The first consisted of 30 male graduate psychology

students and the second consisted of 30 female religious art students. They were given the following instructions:

"Many artists and some psychologists have observed that the individual in making a drawing of the human figure tends to draw himself. He tends to draw his own bodily and facial features. Though this generalization has been accepted in some quarters, it has never been experimentally demonstrated. We would like your cooperation in testing this hypothesis.

You will be presented with sets of drawings and corresponding photographs of the individuals. Match each drawing with the photograph that goes with it. Each drawing will be identified by a letter (or letters), each photo by a number. If, for instance, drawing Z is first matched with photo 85 and drawing X is first matched with photo 93, your scoring sheet would look like this (look at sample scoring sheet).

Pick out the envelopes in the order shown on your scoring sheet. Thus the judge, having the attached sample scoring sheet, would match the drawings and photos in Envelope B first, then the drawings and photos in Envelope C, and so on. If possible, record the first match you make in the first column, and second match in the second column, and so on to the fifth match.

Take as much time as you want. Please ask any questions that will help make clear the nature of this task."

RESULTS

Analysis of variance of factors affecting matching success did not indicate any significant source of variation due to the following sources in either of the two judging groups: judges, envelopes, replications. The data yielded somewhat different evidence regarding the significance of order of presentation for the two groups of judges. The order of presentation source of variation was not significant for the group of religious art judges. It reached a 5% significance level for the psychology students. The number of correct matches for each of the five successive sets were: 28, 44, 28, 29, 53, suggesting no clearly progressive im-

provement or decline in performance. In view of the lack of significant order effects with the group of religious art judges, and the lack of significant order effects in the previous study (Apfeldorf, 1953), the over-all findings did not appear to justify a separate statistical analysis of each order for the psychology judges, and it was decided that a conservative estimate of the average number of matches for the psychology judge group could be obtained by pooling across orders. By using this procedure, it was found that the psychology student judges obtained an average matching success of 1.21 out of a possible 5 correct matches. The religious art judges obtained a somewhat similar average matching success of 1.24. Student's *t* test indicated that both the judging groups matched the drawings and photos significantly better than expected by chance ($p < .01$). The two most matchable and two least matchable drawings, along with the corresponding photos, are presented in Figures 1 and 2.

DISCUSSION

The findings that two groups of judges were able to match the drawings and photos above chance expectancy, along with previous findings, suggest that this matching technique may be of some value in testing the hypothesis of objective body self projection in figure drawings. It might be pointed out however that the average number of matching successes in this investigation is low (1.21 and 1.24 out of possible 5.00 matches). This raises the question, discussed by many, whether other factors beside the objective body self must be considered in accounting for the final figure drawing product. For instance, some investigators have emphasized that the figure drawing product also reflects projection of the ideal body image or some other person in the environment (Levy, 1950).

Possibly, subjects with specialized

body attitudes may not project their objective body self in the same manner as other groups. This was the finding in Apfeldorf's (1953) earlier study in which it was found that drawings of physical education majors, a group presumed to have a more specialized interest in body development, were not matched with their photos, in contrast to the matchability of the unselected student group.

Inspection of the drawings of the physical education group indicated that a sizeable number of them depicted nude or semi-nude well-muscled figures. This depiction, suggesting some ideal body image, was not, however, related to any matchability.

Though the absolutely low number of correct matches does suggest that other factors, besides objective body self, account for the final drawing product, it would appear necessary to overcome certain shortcomings of the present matching method in order to clearly define the optimal extent of matching.

The first shortcoming pertains to the adequacy of the photograph as referent for the body self. There is a question as to whether any single photograph, taken without too much preparation of the subject by the photographer can be fully representative of the body self. Though the somatotype does not vary from day to day, as Sheldon emphasizes, we are all aware that some subjects do not show their characteristic facial expression or posture when first confronted with the camera, and at any rate such features do change during the day and from day to day. The question can be asked whether a referent for the objective body self might be selected with more accuracy if a series of photos of the subject were taken, and only those that were rated by the subject or his friends as characteristic of him were to be used in the matching experiment.

There is, secondly, the question whether the figure drawing done with

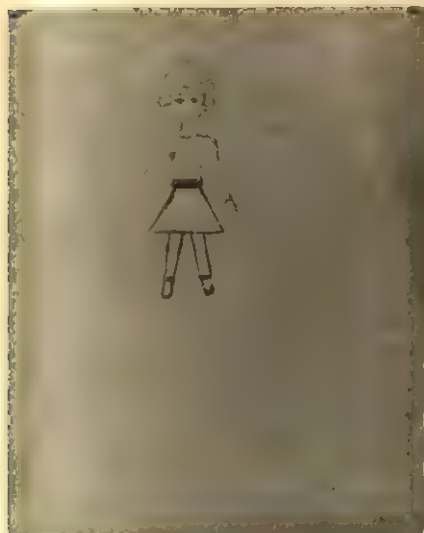


Fig. 1. The two most matchable drawings and photos.
Correct matches are P and 79, and T and 55.

more care would more adequately reflect the objective body image. The drawings in all experiments were obtained through group administration and probably vary in the amount of care expended.

Thirdly, there is still the question

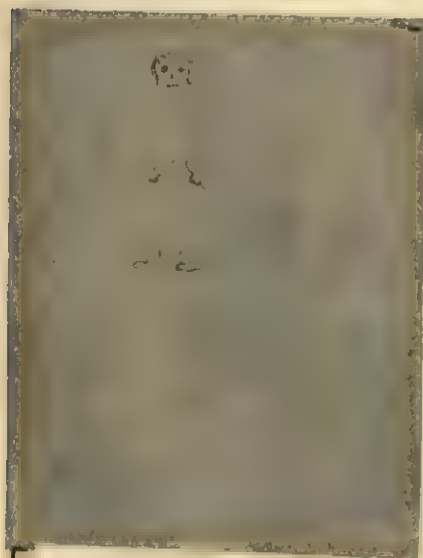
of the extent to which judges are capable of perceiving the similarities. Though the analysis of variance did not indicate any difference between judges, it is not known whether training of the judges in the task would have increased differences.



G



42



E



10

Fig. 2. The two least matchable drawings and photos.
Correct matches are G and 42, and E and 10.

Further research is now contemplated, investigating the role of such factors as attitude toward body development, attitude toward self, and the representativeness of the photograph as factors accounting for the matchability of drawings and photos.

REFERENCES

- Apfeldorf, M. The projection of the body self in task calling for creative activity. Unpublished doctoral dissertation, Univ. of North Carolina, 1953.
- Berman, S., & Laffal, J. Body type and figure drawing. *J. clin. Psychol.*, 1953, 9, 368-370.
- Johnson, O. G., & Wawrzaszek, F. Psycholo-

- gists' judgments of physical handicap from H-T-P drawings. *J. consult. Psychol.*, 1961, 25, 284-287.
- Levy, S. Figure drawing as a projective test. In L. E. Abt & L. Bellak (Eds.) *Projective psychology*. New York: Knopf, 1950, Pp. 257-297.
- Machover, Karen. Discussion of Theodora M. Abel, "Figure Drawings and facial disfigurement." *Amer. J. Orthopsychiat.*, 1953, 23, 262-264.
- Schmidt, L. D., & McGowan, J. F. Differentiation of human figure drawings. *J. consult. Psychol.*, 1959, 23, 129-133.
- Sheldon, W. H. *Atlas of men*. New York: Gramercy Publishing Co., 1954.
- Silverstein, A. B., & Robinson, H. A. The representation of orthopedic disability in children's figure drawings. *J. consult. Psychol.*, 1956, 20, 33-341.
- Silverstein, A. B., & Robinson, H. A. The representation of physique in children's figure drawings. *J. consult. Psychol.*, 1961, 25, 146-148.
- Swensen, C. H., Jr. Empirical evaluations of human figure drawings. *Psychol. Bull.*, 1957, 54, 431-466.
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Projective Imagery in Shakespeare

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Summary: In a passage in *Hamlet*, the hero describes the changing imagery he sees in a cloud. The projection of definite shapes onto an amorphous stimulus strongly suggests a parallel to the Rorschach test. These responses are interpreted as though they occurred on a regular Rorschach protocol. Thus analyzed, they show the breakthrough of Oedipal impulses at a crucial turning point of the play.

It is a widely accepted truism that William Shakespeare was one of the world's greatest psychologists, but his contributions along these lines are seldom specified, and his relation to scientific psychology has not been elaborated, except for a few suggestive attempts (McCurdy, 1961; Allport, 1961). One of the most interesting and ambitious works dealing with Shakespeare's psychology is the product of a literary researcher, who was apparently unfamiliar with the relevant psychological literature (Spurgeon, 1935). In her classic book, Spurgeon painstakingly analyzes Shakespeare's imagery and uses the resulting data as a clue to his unconscious thought processes. Her method, in many respects, bears a striking resemblance to the method employed by projective psychologists, but her seeming ignorance of their work leads her to miss many significant connections and interpretations immediately suggested by some of Shakespeare's lines to those familiar with projective techniques.

In particular, one brief passage in *Hamlet* reads very much like a fragment taken from a Rorschach protocol. We are referring here to the famous lines in Act III, Scene II (Shakespeare, 1947). Polonius is trying to arrange an interview between the reluctant Hamlet and Hamlet's mother. Hamlet puts him off with an apparently irrelevant series of observations:

Hamlet: Do you see yonder cloud that's almost in shape of a camel?

Polonius: By the mass, and 'tis like a camel indeed.

Hamlet: Methinks it is like a weasel.

Polonius: It is backed like a weasel.

Hamlet: Or like a whale.

Polonius: Very like a whale.

Hamlet: Then will I come to my mother by-and-by.

(Shakespeare, 1947,
lines 383-390)

Shortly after this interchange, Hamlet has the long-delayed meeting with his mother, the Queen. Polonius hides behind the curtain in the Queen's bedroom to spy on Hamlet, but inadvertently betrays his presence by an accidental movement that stirs the draperies. Hamlet stabs him impulsively, killing Polonius before he realizes who he is.

The resemblance of Hamlet's cloud to a Rorschach ink-blot is at once obvious. In both cases, there is a projective reading of unstructured stimuli of a relatively ambiguous and abstract character. Furthermore, the person being tested by the Rorschach cooperates with the tester by giving his responses because he is interested in gaining insight into the hidden depths of his personality (Rorschach, 1942). We assume that Hamlet has the same unconscious motivation in the present instance.

There is a traditional consensus among Shakespearean critics that the cloud scene occurs just before the crucial turning point of Hamlet's actions

in the play (Wilson, 1935). It may therefore give us a vital clue to the workings of his inner mind.

His entire dilemma has been convincingly interpreted as a symbolic acting out of the Oedipus complex: "Hamlet is able to do anything — except take vengeance on the man who did away with his father and took that father's place with his mother, the man shows him the repressed wishes of his own childhood realized." (Freud, 1955, p. 265).

However, until this very moment in the play, Hamlet's Oedipal guilt has effectively paralyzed any tendency for decisive action. Immediately after the lines quoted above, Hamlet finally takes a decisive step — his encounter with his mother that results in his murder of Polonius, the father-image, the first bold move that leads to the ultimate denouement (Jones, 1954, p. 157).

Let us see what light can be cast on this sudden breakthrough of Hamlet's repressed Oedipal impulses by interpreting his apparently aimless meanderings (in lines 383 to 389 quoted above) as a modern psychologist would interpret the same responses on a Rorschach protocol.

First of all, the evidently wild and random changes in Hamlet's interpretations of the cloud shapes turn out to be surprisingly restricted in scope: though the three interpretations are different in many respects, all three refer to animals. Animal responses on the Rorschach, of course, are considered to be a symbolic representation of id impulses (Klopfer, 1946; Beck, 1961). Therefore, we may interpret the sudden appearance of animal shapes in the sky, as seen by Hamlet, as probably being projections of powerful impulses returning from the limbo of repression to do battle with his conscious controls.

If we closely examine the sequence of Hamlet's responses a progressive series of connected meanings seems to emerge. His first interpretation of the

amorphous cloud shape is that it looks like a camel. The camel is a domestic animal, a beast of burden — a long-suffering bearer of people and their possessions. The camel, like Hamlet himself, patiently carries the world on his back. If we consider, as some authors have (e.g., Harris, 1909; Taine, 1872) that Hamlet is a more mature self-portrait which had been adumbrated as an early sketch in the figure of Romeo (Shakespeare, 1955), we may here relevantly apply the celebrated lines from *Romeo and Juliet*: "...and shake the yoke of inauspicious stars from this world-wearyed flesh."

However, Hamlet is not content to remain a beast of burden forever carrying the weight of unsolved problems. His next interpretation of the cloud shape is that it resembles a weasel. The weasel is a crafty, vicious, furtive, and predatory creature. Its nature has entered the English language as a metaphor for evasive shrewdness in the verb "to weasel out". We can see the "weasel" in Hamlet's character expressed in the Rosencrantz and Guildenstern episode, which has been commented on by Freud in these words: "...in a premeditated and even crafty fashion, when, with all the callousness of a Renaissance prince, he (Hamlet) sends the two courtiers to the death that had been planned for himself." (Freud, 1955, p. 265).

In his third and last projection, Hamlet now sees the cloud form finally as a whale. The whale is the largest of all living creatures, mistress of the great sea — one of the most universal of mother symbols (Stekel, 1917). This symbolic significance seems to be reinforced by Hamlet's utterance in the very next line (line 390): "Then will I come to my mother by-and-by." An interpretation which seems to be suggested by this image of the whale is that the incestuous impulses that Hamlet has first borne with super-human patience and then struggled against, have now

finally broken through into consciousness, though in disguised form, and have won affective approval.

The immediate effect of this acceptance of impulse is that Hamlet at last fulfills the Oedipal dream. Shortly afterwards, Hamlet kills Polonius, the father-image, in his mother's bedroom by running him through with his phallic sword. Admittedly, this murder is purely accidental in the play. However, such accidents, especially in dramas and novels — as in dreams — invariably represent symbolic content. It will be remembered in this connection that in Sophocles' original tragedy, Oedipus' murder of his father the King, as well as his marriage to his mother the Queen, were also both similarly "accidental" events.

While psychoanalytic theory certainly suggests that Hamlet's uncle, King Claudius, rather than Polonius, is the primary father image, it has been artfully demonstrated that the father-surrogate in this drama has been "decomposed" into three parts: the dead father or the Ghost who embodies all good qualities; the King who represents the active, dynamic and the potent aspect of the father; and Polonius, who expresses his senile, doddering, weak and impotent aspect. (Jones, 1954, pp. 138-139; 154). Naturally, it is this latter aspect of the father which is confronted more easily and earlier in the play by Hamlet.

Additional light may be shed on this interpretation by looking at the author of the play himself. According to the eminent Danish critic Georg Brandes (1898), *Hamlet* was written just after the death of Shakespeare's father in 1601. Freud interprets this important biographical datum as most illuminating in reference to Shakespeare's life and work. "For it can of course only be the poet's own

mind which confronts us in Hamlet." (Freud, 1955, p. 265).

Freud then suggests that under the impact of his grief over his father's death, Shakespeare's — and Hamlet's — early childhood feelings toward the father were newly revived. This return of the Oedipal situation is clearly supported by Spurgeon's (1935) detailed analysis of *Hamlet*, demonstrating conclusively that the imagery in this play is permeated throughout by sickness, death, and decay, in striking contrast to the imagery in Shakespeare's other plays.

REFERENCES

- Allport, G. *Pattern and growth in personality*. New York: Holt, Rinehart & Winston, 1961.
- Beck, S. *Rorschach's Test*. New York: Grune & Stratton, 1961, Volume I.
- Brandes, G. *William Shakespeare: a critical study*. London, W. Heinemann, 1898.
- Freud, S. *The interpretation of dreams*. New York: Basic Books, 1955.
- Harris, F. *The man Shakespeare and his tragic life-story*. New York: M. Kennerley, 1909.
- Jones, E. *Hamlet and Oedipus*. New York: Doubleday, 1954.
- Klopfer, B. *Rorschach technique*. New York: World Book Co., 1946.
- McCurdy, H. *The personal world*. New York: Harcourt, Brace, 1961.
- Rorschach, H. *Psychodiagnostics*. New York: Grune & Stratton, 1942.
- Shakespeare, W. *Hamlet*. London: Oxford University Press, 1947.
- Shakespeare, W. *Romeo and Juliet*. Cambridge: University Press, 1955.
- Spurgeon, C. *Shakespeare's imagery*. Cambridge: University Press, 1935.
- Stekel, W. *The technique of dream interpretation*. New York, 1917.
- Taine, H. *The history of English literature*. New York: Holt & Williams, 1872.
- Wilson, J. *What happens in Hamlet*. Cambridge: University Press, 1935.

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Received November 1, 1965

Revision received January 6, 1966

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BOOK REVIEWS

Heath, Douglas H. *Exploration of Maturity*. New York: Appleton-Century-Crofts, 1965. pp xiv, 423. \$7.50.

In the present volume, an attempt at experimentally exploring certain of the dimensions of psychological maturity is undertaken. The author begins by discussing maturity as a theoretical construct, illustrating some of the vicissitudes of intellectual fortune that confound the researcher. He contends, however, that it is possible to explore various aspects of maturity by focusing not upon the emotionally immature and consequent definition of maturity by exclusion but rather by focusing upon defining maturity as the end point of a developmental sequence. In so doing, considerable attention is given to the concepts of stability and integrity of personality organization, to allocentrism and autonomy, and to cognitive effectiveness. Turning from the theoretical analysis, the author then describes the selection of a research population of college men characterized by judges as mature or immature, together with a report of the test findings derived from questionnaire and projective techniques. In general, good consensus was achieved between judges' estimates of maturity or immaturity and test based opinion regarding maturity or immaturity. Proceeding from these findings, an exploration of the empirical confirmation of the foregoing theoretical and empirical framework was conducted in order to ascertain whether the more mature individual was less susceptible to disorganization by disturbing experiences. This was accomplished by presenting disturbing emotionally laden material and then assessing the quality and adequacy of processing of the disturbing information. The findings suggest, in line with theoretical predictions, that more mature individuals remain more stable in the face of disturbing information, and show less regression in their psychological defense structures. The author concludes by re-examining the concepts of psychological maturity in light of his empirical findings, pointing out that the techniques involving assessment of the adequacy of information processing and ego adjustment used in the present research would seem to have considerable generality in the field of personality. On balance, this work is stimulating in its heuristic impact and should provide a fruitful source of insight with respect to psychological exploration of ma-

turity and personality development. It should prove a useful text for both researchers and teachers.

A. BARCLAY
AUDREY M. THAMAN
Saint Louis University

Henry, George W., M.D., *Masculinity and Femininity*. Collier Books, New York, N. Y., pp. 320, 95 cents.

To those who are led to expect something new from the pen of Dr. Henry will be sadly mistaken because this book was originally parts 1 and 2 of *All The Sexes*, a book first published in 1955. The current paperback edition is published for the first time under its own title, *Masculinity and Femininity*.

Those familiar with the writings of Dr. Henry will expect it to be a study of the psychosexual adjustment of individuals, with heavy emphasis on the study of homosexuals and here they will not be mistaken. The book represents the author's findings from a study of 8000 men and 1000 women, both heterosexual and homosexual. The study, itself, came into being as a result of the formation of the Committee for the Study of Sex Variants whose purpose it was to make an exhaustive study of homosexuality. Out of these early investigations came Henry's first book, *Sex Variants*, an important forerunner for many later studies of homosexuality, including that which created *All The Sexes*.

In the present book, three illustrative cases are presented, an exhibitionist, a bisexual, and a homosexual. This is followed by a report on contributing factors, the types of adjustments that are made by those disturbed in their psychosexual adjustments, and the personal reactions that result, such as impotence, frigidity, dreams, fantasies, and emotional disorders.

Part two of this short book is devoted to what Henry calls the "Personality Development." He places a great deal of stress upon the family background, as well he should, showing how the many members of the family constellation play an influencing role, with the parental drives and sibling rivalries, and how the neighborhood, the school, the transition from young adulthood through the thirties, middle age, and finally old age, all must be considered.

The latter section is revealing in that we are able to capture a glimpse into the reflective thinking of those who have reached a period in their lives when they are able to look back and see how deep has been their feeling of frustration and the agonies of social segregation. Dr. Henry is not a moralist and sees punishment as no solution but as he sees it, useless and unjust. He states that so very little has been recorded pertaining to the sexual adjustment of the elderly, especially that of women.

Yes, there is nothing new in this book that has not appeared in his previous edition of *All The Sexes* and many recent studies on the subject of sexual maladjustments have gone beyond the studies of Dr. Henry. What makes this pocketbook of greatest value is that it reports on some of the earliest and better studies in the field and puts the book on an economic level available to many more who wish to study the problem. There is little that should attract the thrill-seeker or purchasers of so-called erotic literature, even at the low price of ninety-five cents.

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Kornrich, Milton (Ed.), *Psychological Test Modifications*, Springfield: C. C. Thomas, 1965. P. 265. \$8.75.

The author, a graduate of Adelphi University clinical psychology training program, is presently engaged in the practice of personality assessment and psychotherapy. His purpose in compiling another of the edited volumes which seem to be so popular these days was to "get more" from patients in terms of test responses, and in this frame of reference he has sought to assist psychodiagnosticians in more fully utilizing those tests which are already available to the profession.

In the use of the term test modification, the editor refers to the re-administration of a psychodiagnostic instrument in a new way following the standard administration. Unlike the tests themselves, the modifications described in the several papers in this book have been relatively unknown. It occurs to this reviewer that one possible reason for this lack of dissemination is the reality of time, since most psychologists who engage in the assessment process have only a limited amount of time available for each patient. For those professionals with a more flexible schedule, however, these papers present several in-

triguing avenues for exploration. Included are expanded versions of the venerable word association test, which Greenbaum utilizes as an aid to interpreting the Bender-Gestalt test with children and which Appelbaum employs as a measure of the psychological deficit associated with brain damage. As might be anticipated, there are several papers dealing with Rorschach testing. Kornrich himself in a previously unpublished study describes a simple method for obtaining "new" responses which the patient evidently could not freely offer during the standard administration. In another paper which aims at testing the examiner's hypotheses regarding the meaning of responses, Howard Halpern describes a technique in which the patient is questioned in a highly structured manner about his previously given protocol responses. The case illustrations are good, and this method would appear to be of value to the psychotherapist and counselor, as well as to the clinical diagnostician and assessment specialist.

Another of the papers which this reviewer found particularly interesting was one by Jones on the Negation TAT, which is based upon the concept of negation as it first appeared in Freud's paper, "The Unconscious" (*Collected Papers*, Volume IV, p. 119), in which it was proposed that the subject matter of a repressed image could make its way into conscious awareness on the condition that it is made negative. Thus, negation is conceptualized as a way of taking into account that which is repressed, and indeed it serves as a removal of the repression in a sense. Jones' basic procedure can be summed up as asking the patient that which is *not* happening in the picture. The clinical utility of this approach could be diagnostically significant, and there is a report of a study of Negation TAT stories which demonstrates that they were rated as more suggestive of repressed psychic content than were ordinary TAT stories.

This book will be of greater value to those psychologists who do not have ready access either to a comprehensive library or to photoduplication facilities, for in these 265 pages Kornrich has assembled 18 papers, most of which had been previously published between 1946 and 1964 in readily available journals. In addition, this book is not considered to be too appropriate for students and beginners in psychological testing, inasmuch as they have a difficult enough task in becoming proficient with the more familiar non-modified instruments; however, experienced psychologists will find this small

volume to be a source of more than just a few interesting leads for practice and research. Apart from the fact that the editing could have been more thoroughly done in assuring, for instance, that basic words were correctly spelled, the typography and general format of the book are in keeping with standards long established by the publisher.

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Sumita, Katsumi; Hayashi, Katsuzo; & Ichia, Toru, *Rosenzweig's Personality Theory*. Kyoto: Sankyo-bo, 1964, pp 158, Y 600.

Rosenzweig's P-F study is a most frequently used type of projective test in Japan, probably because it is easy to administer, to score, and to interpret. This ease is largely because the test's stimulus materials are highly structured and theory-based, and because it has a scoring system more objective than most projective tests. The readable style of this book and the many good examples provided by its authors will promote the psychological and clinical use of this technique in Japan. Usually the explanation of foreign scientific methods to Japanese readers include many awkward sentences due to literal translation, but the reviewers found only one sentence of this nature in this book (Page 19, Lines 16, 17).

Rosenzweig's Personality Theory is divided into two parts. The first part (118 pages) deals with the development of the theoretical backgrounds which led to Rosenzweig's P-F study, and the second explains the use of the study for clinical purposes.

After briefly introducing the outline of the development observed in Rosenzweig's writings in Chapter One, the writers explain his early view of personality in the second chapter. An organism is seen as "a unitary whole, with the individuality existing in a specific environment; having the function of adjustive effort for integration and self-actualization." The organism has "a unique way to adjust and to defend itself under difficult situations." The authors explain the nine basic patterns of reaction to frustration—the combination of three types of reaction (obstacle-dominance, ego-defense, and need-persistence) and three directions of aggression (extrapunitive, intro-punitive, and impunitive).

The authors state that Rosenzweig's explanation of the tendency toward self-punish-

ment by the intro-punitive persons is "oversimplified." Rosenzweig explains the tendency in terms of "the self blaming itself, when it is afraid of blaming others" or "a result of suppression of blaming others, involving the defenses of displacement, isolation, and undoing." Using Sandor Rado's analysis, they try to explain for Japanese readers the tendency toward self-punishment in terms of (1) primitive conviction of omnipotence, a wish for autonomous self-realization, and the resultant Alloplastic adaptation, (2) strong rationalism or realistic foresight, and (3) a unique pattern of child disciplining by the mother, which produces enraged defiance, fearful obedience, guilty fear, and expiatory behavior (pp. 31-32).

In Chapter 3, Rosenzweig's view of personality is related to techniques for the assessment of personality. Starting with a brief survey of the development of holistic studies of personality, in contrast with segmentalistic experimental psychology, the authors explain the methods of studying personality as a dynamic entity—psychological measurements and projective tests—referring to the works by Francis Galton, C. L. Hull, O. H. Mowrer, N. E. Miller, and S. Freud.

At the end of Chapter 3, Rosenzweig's proposal to replace the concept of psychological laws by norms (pp. 49-50), and his concepts of universal, group, and individual norms in relation to projective techniques are discussed. For understanding dynamic personality, it is necessary (1) to study the "subjective stimulus apperceived by the individual as a reaction to frustration, or the characteristic pattern of the individual's intrapsychic operation, (2) to measure the distance of his characteristic pattern from the norms of the group to which he belongs, and (3) to interpret the relationships among his intrapsychic phenomena in terms of universal norms. Based on this guide line for the assessment of personality, the P-F study method was devised. Rosenzweig preferred projective techniques to usual psychological tests, because the former facilitate the study of "overt idiographic behavior" and "semantic individual norms" by the use of "psychographic representation." (p. 53)

In Chapter 4, after summarizing the differences between Freud and Rosenzweig, who is a Neo-Freudian, the authors discuss the latter's three hypotheses from a methodological point of view—response dominance, configuration dominance, and the levels of behavior. Rosenzweig intended to find the unique, and most subjective response tendency of an individual. Other projective tech-

niques attempt this too, but the uniqueness of the P-F study is that it expects to draw a more focalized reaction and elicit the core motive of the ego seen as operating in frustrating situations.

The configuration-dominance hypothesis was formed to characterize Rosenzweig's 'idiodynamics' (dynamics of the 'idiouniverse'—the unique interrelatedness of the individual universe of events). Rosenzweig hypothesizes stimulus as a trigger for inducing a reaction characteristic of an individual, and the importance of past experiences in apperceiving the meaning to a stimulus. The interrelatedness among these phenomena is the focus of the P-F study.

Considering the three levels of behavior or the concepts of personality levels—the opinion level (I should do), the overt level (I do), and the implicit level (I wish to do)—the major subject of the P-F study is (1) to collect and classify overt reactions systematically, (2) to explain the overt (phenotypical) reactions in terms of implicit (genotypical) reactions. The major source of success of the P-F study is in the formation of problematical scenes which are devised to draw answers that are expected to shed light on the relationship between the phenotypical and genotypical reactions.

Chapter 5 deals with a psychological interpretation of the eleven category reactions to frustration—nine combinations of Extrapunitive (E), Intropunitive (I), Impunitive (M), and Obstacle-Dominance (O-D), Ego-Defense (E-D), Need Persistence (N-P), plus *E* and *I*. The last two are forms of ego defense against the punitive superego. The reactions and their interpretations are illustrated by examples of specific cases as well as by many diagrams.

The second portion (36 pages) illustrates the recording of observed reactions and the interpretations of the profile column including the superego factor column. In Chapters 6 and 7, case illustrations are given for each of the eleven reaction types, for a shifting in reaction during the process of response to pictures, for a longitudinal administration of the test, and for GCR (the Composite Group Conformity Rating).

In conclusion, this book is an excellent introduction, illustrating Rosenzweig's personality theory and the P-F study for Japanese readers. If the authors had included some comments, using Japanese materials, in the problems for which the P-F study is often criticized, for example, inter-item consistency

and interscorer agreement, the significance of this book would have been enhanced.

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Zubin, J., Eron, L. D. and Schumer, Florence. *An Experimental Approach to Projective Techniques*. New York Wiley and Sons, 1965.

For more than a quarter of a century the senior author of this volume has been concerned with the scientific status of clinical methods—their validity, reliability and general appropriateness as operational modes of a scientifically-based profession. With his two collaborators he has put together a volume, consisting of upward of 600 pages, in which the scrutinizing eyes of the experimentalist and psychometrician are focused upon projective techniques. There is a great deal in this book—detailed criticism as well as meticulous proposals for research programs. It certainly will be difficult to do justice to such a *magnum opus* within the confines of a brief review. We shall attempt a panoramic view of the vast terrain.

The book may be divided into three major parts. The first part, consisting of three chapters (one—on the history of projective techniques (P.T.), their assumptions, functions and other characteristics; the other two are concerned with perception and its relationship to personality) sets the stage for what is to follow. The relevance of the detailed treatise on perception, (over 100 pages) in this context, may be questioned, however. We shall return to this point. The second part of the book—five chapters, and more than 200 pages of it—is devoted to the Rorschach method—its "current status and methodological problems," the method "as a psychological experiment," "a psychometric approach to the Rorschach" (two chapters—formal factors and content factors), and "derivatives" of the method. A similar and parallel analysis of the TAT is contained in the subsequent four chapters of the work. In this instance, only one chapter is devoted to a psychometric approach to the method. A very brief "epilogue" makes up the last (and 13th) and concluding chapter of the book.

Now that we are familiar with the overall contours of the map, let us have a look at some of the details. Essentially, the aim of

the book "is an attempt at returning projective techniques to the scientific fold." The authors, however, use the wrong verb; they do not really believe that P. T. were *ever* in the scientific fold. Consequently, the word "admitting," rather than returning, would be more appropriate. This *rapprochement* between psychology proper and P. T. is thrown out as a challenge to the experimental psychologist. The "revolt against the rigid framework which grew up around mental testing," represented by P. T., has to be somehow contained and the errant son of psychology, although the paternity is somewhat in doubt, must return to the family circle. Despite the doubtful legitimacy of both major techniques, the "foreign," (Rorschach) son fares much worse than the "native" son (TAT), at the hands of the authors of this volume.

In the first chapter a miscellany of topics is covered—from a history of projective methods, through theories of the methods, their assumptions, and classifications, to problems of validity of clinical operations in general. Even the use of P. T. in cross-cultural research receives some attention. A good deal of criticism of the methods, with a tendency to highlight negative findings, is offered generously throughout the chapter. However, the authors conclude: "nevertheless, that the enthusiasm for projective techniques, the reliance placed upon them by responsible and mature clinicians, and the frequent (if not consistent or reproducible) reports of positive findings are such that projective techniques not only deserve a hearing, but should be evaluated in the most objective way possible" (p. 49). However, the tribunal that is giving P. T. their "hearing" also sets up its own ground rules—"evaluation . . . should proceed with the help of psychometric criteria." Essentially, the authors' aim, which they achieve admirably in later chapters, is to set up systematic rating procedures of projective responses so that scoring be uniform and maximally objective.

Since perception is involved in projective techniques—"Perception: an approach to personality?" is examined in detail in the next two chapters (2 and 3). With a considerable display of erudition the authors examine different definitions of personality and perception, theories of perception and approaches to personality via perception. Special attention is paid to the so-called "directive-state theory" or the "new look" in perception because of its particular relevance to P. T. Finally, a section on "Perception and Projective Techniques" caps the entire enter-

prise which could be a separate monograph in itself.

Most revealing, and perhaps disturbing to some, is the following statement concerning personality: "As we all know, in the beginning, personality as a field of study had everything; then it lost its intelligence, and before it could recover, it lost its interests and attitudes. It still feels, aspires, and has sentiments as long as they remain unmeasurable. Once they too fall under the psychometrician's ax, personality will be extinct, or will it?" (p. 52). The ambivalence of the authors about the concept of personality is quite clear. Moreover, in the reviewer's opinion, the fact that some aspects of personality become measurable does not exclude them from the field. Personality as an integrated concept still remains and encompasses all of the variables that are presumably extirpated from its body by the "ax" of the psychometrician (not his surgical scalpel!). "Peripherality" and "elementarism," to use Murray's (1938) terms, are implied by the pronouncement quoted above. These approaches represent a counter-reaction, certainly not shared by most clinical psychologists, to the "revolt" against traditional psychology which began more than a generation ago.

It is, therefore, not surprising that the authors find little use for the "Directive-state" theory linking perception and personality. They conclude, with some justification, that a "direct relationship between perception and personality has been difficult to demonstrate." It is not clear, however, what the key word *direct* means. Interpretation, rather than perception, is the key concept which they prefer to invoke in connection with P. T. In addition to this assigning of meaning to ambiguous stimuli, the authors point out that the projectivist must consider the nature of the stimulus, E-S interaction, set, and other variables, such as cultural-educational factors and attitude to testing. One may wonder whether the same factors do not operate in the use of the "objective" psychometric instruments, including intelligence tests. If so, the authors' comments and conclusions are not specific to P. T., but to any kind of testing-experimental situations. In fact, the experienced clinician does take all of these into account when making final interpretation. There is no harm, however, in reminding the reader of these variables, and the accumulation of experimental evidence on these parameters will be helpful for it may become assimilated in the cognitive maps of the practitioners.

Historical perspectives and a detailed re-

view of the methodological problems in Rorschach research are contained in the fourth chapter. The major conclusions are that studies of reliability with this method "have yielded unsatisfactory results, that the methodological difficulties have produced contradictory evidence concerning its variables, and that global and content approaches have been more successful than "atomistic methods." This leads the authors to a further conclusion that the Rorschach is basically an interview rather than a psychometric instrument.

Since Hermann Rorschach himself wrote of the tentative nature of his "experiment," and since he focused upon the determinants rather than on content, the next three chapters (5, 6 and 7) endeavor to extend the method beyond its crude beginnings and "primitive" scoring system and help it acquire psychometric respectability. First, a detailed analysis of the Rorschach technique as an experiment is offered. The experimenter and his task, the subject and his task, their interaction, recording, analyzing and evaluating responses, etc., are discussed in detail and in relation to the relevant literature. This is a valuable undertaking which may even be helpful to the clinician, as well as the experimenter, who employs projective methods. Special attention to the analysis of the nature of the stimulus is also given. On the basis of a review of the Rorschach and perceptual literature, mentioned earlier, the authors propose a more refined scoring schema of Rorschach responses. Their suggestion involves the analysis of responses on six levels—location, stimulus properties, objective determinants of percept, phenomenal determinants, characteristics of the perceived object and formal content. These levels of analysis serve as the foundation upon which the detailed scoring method, set forth in the next two chapters, is based.

The final constructive proposal for the psychometrization of the Rorschach appears in chapters 7 and 8. In addition to the variables listed in the last paragraph, above, the categories of organization, S's attitude toward responses, "general data" (such as card turning, succession, etc.) are also introduced. A total of more than 90 scales are proposed for the rating of the responses. An example of rating achromatic color (scale 9b) is as follows:

0. Not present at all
1. Present to a slight degree
2. Present to a moderate degree
3. Present to a considerable degree
4. Most important type present

When the reader asks himself—what is the outcome of this bewildering array of scales?, he is left floating in the sea of numbers. The authors conclude bravely that "The final integration of all the scales into overall measures cannot be accomplished until factor analysis methods or pattern analysis methods are worked out." Where will those measures lead us, and what are the implications for more accurate personality assessment, is not clear. But, undoubtedly, we will have an instrument that is scored *accurately*! Of course, it will depend upon how closely different raters agree with each other, whether the quality in question is present to a "slight degree" or to a "moderate degree."

An approach similar to the one applied to the Rorschach, is also proposed for the TAT. The number of scales is mercifully smaller, consisting of scales for "emotional tone" for the 20 cards and a general rating scale for outcome. However, this is not all. In addition to the scales, frequency counts of various aspects of the themes are proposed. For this purpose, a checklist of numerous themes, including a few of Murray's original needs, is provided. More than 100 items are listed for the purpose of studying "Disequilibrium" (interpersonal and intrapersonal) and some 40 items for the investigation of equilibrium. In addition, nearly 20 "unusual formal characteristics" and some "usual" deviations for each card are placed in two more rubrics. Essentially, it is difficult to see why this system is superior to a number of methods of scoring (including the original one) already available in the literature. Perhaps the "advantage" here is that it does not espouse any theory, but attempts to account for all variations in content and provide an empirical-quantitative basis for its analysis. The contribution is, perhaps, methodological, but not substantive.

Mention should be made of the two relatively brief chapters that accompany the longer discussions of the Rorschach and TAT. The Levy Movement Blots, the Holtzman, and several other methods are discussed in the chapter on "Derivatives." However, the Behn-Rorschach, the Howard Inkblots, and the Harrower large scale technique receive no mention. Most derivatives of the TAT are dealt with in the corresponding chapter, but the inclusion of the Rosenzweig P-F Study in this context is rather questionable, for it is a completion method and not "thematic" in the strict sense of the word. The aim of these chapters is generally unclear in relation to the rest of the book. Criticism abounds, but no effort to "harness" them with the

experimental-psychometric direction has been made. They seem to be out of focus with the rest of the book. An effort at completeness of coverage may have been made, but, as indicated above, it has not been fully achieved.

In the epilogue to the book the authors wonder why so little progress has been made in the scientific assessment of personality. Here they put the finger on the major source of difficulty which cannot be attributed to P. T. They state: "Perhaps one of the reasons is the difficulty in isolating reliable external criteria for validating tests in the personality area . . . (p. 605)." Thus, a good deal of the criticism leveled at P. T. (especially with respect to validity and prediction) is due to the state of the field of personality and personality theory.

Summing up—this book is a methodological critique of, and research program for, the two major projective methods. It represents a point of view—the psychometric approach. The commitment to the point of view involves some bias as well. Although complete coverage of the relevant literature is impossible and was not intended, a certain selectivity of references reflects the viewpoint. Thus, while Meehl's actuarial prediction is highlighted, Holt's (1958) rejoinder is not mentioned. Although extra test factors are discussed, Masling's (1960) detailed review is avoided, and so on. Maybe some brave soul will undertake the gigantic scoring task with the Rorschach. However, perhaps the study of

the interpreter and the process of interpretation (Rabin, 1958) rather than the minute investigation of the stimulus, may be fruitfully pursued as well.

Finally, the authors wish that P. T. "return" to psychology. They imply that the "revolt" is unsuccessful or abortive. Perhaps the authors are a bit myopic and think of the "rest of psychology" as it was 30 years ago. Psychology has changed; there is tremendous concern with personality and its dynamics, with social processes and interactions. This is much of the "rest of psychology" which represents a successful revolt and change in which P. T. continue to play an important role.

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References

- Holt, R. R. Clinical and Statistical Prediction: A reformulation and some new data. *J. Abn. Soc. Psychol.* 1958, 56, 1-12.
- Masling, J. The influence of situational and interpersonal variables in projective testing. *Psychol. Bull.* 1960, 57, 65-85.
- Murray, H. A. et al. *Explorations in Personality*. New York: Oxford University Press, 1938.
- Rabin, A. I. Varieties of Rorschach Interpretation. Paper delivered at the 1958 annual meeting of Midwestern Psychological Association, Detroit, Michigan.

ANNOUNCEMENTS

SOCIETY FOR PROJECTIVE TECHNIQUES AND PERSONALITY ASSESSMENT

1966 ANNUAL MEETING

SEPTEMBER 2-5
NEW YORK CITY

- 9:00-12:00 Board Meeting — Parlor E, Commodore Hotel
- 1:00- 2:00 Distinguished Contributions Award, Frederick Wyatt, Chairman — Windsor Court, Commodore Hotel
- 2:00- 3:00 Presidential Address: "How Objective is Objectivity?", Frederick Wyatt, Ph.D. Windsor Court, Commodore Hotel
- 3:00- 4:00 Business Meeting, Martin Mayman, Chairman — Windsor Court, Commodore Hotel
- 4:00- 6:00 Dutch Treat Cocktail Hour — Parlors B and C, Commodore Hotel

SYMPOSIA CO-SPONSORED BY THE SOCIETY FOR PROJECTIVE TECHNIQUES & PERSONALITY ASSESSMENT:

Friday, Sept. 2, 3:00 p.m.

Empire Room, Waldorf-Astoria Hotel

Community Mental Health: A Challenge to Traditional Diagnostic Methods — Bernard L. Bloom, Ph.D., Chairman.

Friday, Sept. 2, 4:00 p.m.

Terrace Room, Roosevelt Hotel

The Relevance of Personality Assessment to Job Performance — Harry Levinson, Ph.D., Chairman.

Saturday, Sept. 3, 10:00 a.m.

Bowman Room, Biltmore Hotel

Measuring Reality-Adherence in the Rorschach Test — Riley Gardner, Ph.D., Chairman.

Sunday, Sept. 4, 10:00 a.m.

A Psychoanalyst and a Methodologist Look At Two Examples of Psychoanalytic Research — Martin Mayman, Ph.D., Chairman.

Sunday, Sept. 4, 10:00 a.m.

Palm Garden Room, Waldorf-Astoria Hotel
The Psychologist as an Expert Witness — James McCary, Ph.D., Chairman.

Monday, Sept. 5, 1:00 p.m.

Jensen Suite, Waldorf-Astoria Hotel

The Role of Experiential Data in Personality Assessment and Research — Robert M. Martin, Ph.D., Chairman.
Is Psychological Evaluation Necessary for Rehabilitation? — Lawrence H. Benjamin, Ph.D., Chairman.

SPRING BOARD MEETING IN SAN FRANCISCO

April 15, 1966

The spring Board Meeting of the Society for Projective Techniques and Personality Assessment was held on Tuesday, April 12th at the Hilton Hotel in San Francisco. Members present were Louise Ames, Gordon Filmer-Bennett, Bruno Klopfer, Walter Klopfer, Martin Mayman, Earl Taulbee and Fred Wyatt, President.

The usual reports were read and accepted. Of special interest to members will be the report of the program committee chairman (Martin Mayman) that of the seven symposium items offered for joint presentation at the fall, 1966 A.P.A. meetings, all seven had been accepted for the program, one each with Division 3, 5, 14 and 22 and three with division 12.

This rather conspicuous success to some extent answered, for the time being, the question which is raised at most board meetings—whether or not to try for membership or close affiliation with the A.P.A. Since the two chief activities of our society are, at present, the publication of the journal and presenting programs at the A.P.A. meetings, and since both can be carried on effectively while we remain in our present independent status, there seems no real need for pursuing this matter at this time.

Several measures voted on favorably by the Board were, jointly, aimed at giving more continuity and smoothness to carrying on the business of the Society. An ad hoc committee under the chairmanship of Earl Taulbee was set up to put together a handbook of procedures, which will spell out the exact role and responsibility of all committees and officers. Other members of this committee will be chairmen of present standing committees: Walter Klopfer, editorial; Al Rabin, nomina-

tions; Gordon Filmer-Bennett, membership; and Martin Mayman, program.

A further step in this direction was the election to hold all spring meetings on the West Coast, preferably in Los Angeles, and to invite Marilyn Weir, whose title has been changed from Corresponding Secretary to Administrative Assistant, to attend these meetings. Since a large part of the actual business of the society is carried out by Mrs. Weir, her attendance at these meetings would be most helpful.

According to the Treasurer's report, our finances are in good shape. According to the report of the Editorial committee, the increase to six issues of the Journal per year instead of four is greatly facilitating the publication of manuscripts.

For the record and for the benefit of members present, membership of the various standing committee was reviewed.

Our new awards—the Great Man award and the Bright Man award were discussed. In order for the recipient of the Great Man award to give an acceptance speech at the time he receives the award, it was decided to let him know of this honor somewhat in advance of the meeting where it would be given. The award to the younger man would be given to someone who, currently, had published some noteworthy book or article, within three years of obtaining his own Ph.D.

The membership committee reported that applications of 8 fellows, 13 members and 5 associates had been approved. Members are urged to encourage qualified colleagues to apply for membership. Current members who have now become qualified for life membership (65 years of age and a 25 year member of the society) will be invited to apply for such membership.

The highly controversial question of our name and the name of the journal was discussed at some length. The name of the society was some years ago changed from The Society for Projective Techniques and Rorschach Institute, Inc. to The Society for Projective Techniques and Personality Assessment, Inc. The present proposal is to change the name to The Society for Personality Assessment. Strong feelings were expressed both pro and con.

In regards to the Journal, the idea was suggested, and accepted, that members should be encouraged to send letters of comment or criticism for inclusion in the journal since it is the aim and effort of the editor that the

content of the journal has become more diversified than it has been in the past.

The fall meeting of the Society has been set for Friday, September 2, 1966 in New York. A Board meeting will be held in the morning, followed by a business meeting, distinguished contribution award and presidential address from 1 to 3 p.m., followed by a social hour.

7th INTERNATIONAL CONGRESS OF RORSCHACH AND OTHER PROJECTIVE TECHNIQUES

To be held in London at THE LONDON SCHOOL OF ECONOMICS from August 5th to 9th, 1968, on the theme: "The Projective Approach to The Study of Personality".

Simultaneous translation is to be provided.

Residential accommodation nearby will be available.

Dr. G. B. Barker, Chairman of the Programme Committee, Tooting Bec Hospital, London, S.W. 17, invites papers falling within the broad theme of the Congress.

General inquiries: Mrs. Celia Williams, Chairman of the Administrative Committee, 32, Willes Road, London, N.W. 5.

POST-DOCTORAL INSTITUTES

The 1966 Post-Doctoral Institutes of Division 12 (Clinical) of the American Psychological Association will be held at the Commodore Hotel in New York City from August 28th through September 1st inclusive. There are now plans for eight Institutes including a wide variety of clinical and research topics. For information and an application blank please write:

Dr. Cynthia P. Deutsch
Institute for Developmental Studies
Department of Psychiatry
New York Medical College
Fifth Avenue at 106th Street
New York, New York 10029.

Registration deadline is July 1, 1966.

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BOOKS FOR REVIEW

The following books are available for review. If you would like to review one of them please write to the Executive Editor, Walter G. Klopfer, Ph.D., 7111 S. W. 55th Ave., Portland, Oregon 97219.

Thomas, Caroline B., Ross, Donald C., & Freed, Ellen S. *An Index of Rorschach Responses*. Baltimore: The John Hopkins Press, 1964, 717 pages.

Saarinén, Pirkko. 'Developmental Results in a Block Sorting Test,' *Reports from the Psychological Institute*. Finland: Univ. of Helsinki, vol. 2, 1964, 30 pages.

Bentz, Hans W. *Sigmund Freud in Übersetzungen*. Verlag, Frankfurt A.M., 1961, 60 pages. (received 11-17-65)

Lindzey, Gardner, & Hall, Calvin S. *Theories of Personality: Primary Sources and Research*. New York: John Wiley & Sons, 1965, 543 pages.

Szekely, E., "Basic Analysis of Inner Psychological Functions," *The British Journal of Psychology*. London: Cambridge Univ. Press, 1965, 130 pages.

Loosli-Usteri, Marguerite. *Manuel Pratique du Test de Rorschach*. Paris: Hermann, 1965, 246 pages. (received 10-22-65)

Smith, M. G. *Stratification in Grenada*. Berkeley & Los Angeles: Univ. of Calif. Press, 1965, 271 pages.

Beck, Samuel J. *Psychological Processes in the Schizophrenic Adaptation*. New York: Grune & Stratton, 1965, 417 pages.

- Taylor, Calvin W., (Ed.) *Widening Horizons in Creativity*. New York: John Wiley & Sons, 1964, 457 pages.
- Schaie, J. W., & Heiss, Robert. *Color and Personality*. New York: Grune & Stratton, 1965, 281 pages. (received 7-29-65)
- Leland, Henry, & Smith, Daniel E. *Play Therapy with Mentally Subnormal Children*. New York: Grune & Stratton, 1965, 231 pages. (received 9-14-65)
- Singer, Erwin. *Key Concepts in Psychotherapy*. New York: Random House, 1965, 358 pages. (received 10-15-65)
- Phillips, Herbert P. *Thai Peasant Personality*. Berkeley: Univ. of Calif. Press, 1965, 208 pages. (received 10-22-65)
- Stekel, Wilhelm. *Peculiarities of Behavior*, vol. 2, New York: Grove Press, 1964, 337 pages.
- Shapiro, David. *Neurotic Styles*. New York: Basic Books, 1965, 199 pages. (received 1-3-66)
- Dennis, Wayne. *Group Values through Children's Drawings*. New York: John Wiley & Sons, 1966, 210 pages. (received 2-22-66)
- Gilberstadt, Harold, & Duker, Jan. *A Handbook for Clinical and Acturial MMPI Interpretation*. Philadelphia: W. B. Saunders, 1965, 134 pages. (received 2-1-66)
- Cattell, Raymond B. *The Scientific Analysis of Personality*. Chicago: Aldine Publ. Co., 1966, 376 pages. (received 3-4-66)
- Marcuse, Herbert. *One-Dimensional Man*. Boston: Beacon Press, 1966, 260 pages. (received 3-4-66)
- Grant, Vernon. *This Is Mental Illness: How It Feels and What It Means*. Boston: Beacon Press, 1966, 210 pages. (received 3-4-66)
- Carpenter, Edmund, & McLuhan, Marshall (Eds.) *Explorations in Communication: An Anthology*. Boston: Beacon Press, 1966, 208 pages. (received 3-4-66)
- Reeves, Joan Wynn. *Thinking about Thinking*. New York: George Braziller, 1966, 333 pages. (received 3-14-66)

Journal of Projective Techniques & Personality Assessment

Vol. 30

August, 1966

No. 4

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Personality Assessments Conceptualized as Perspectives¹

WALTER EMMERICH
Purdue University

Summary: The view was advanced that an integral understanding of personality requires a conceptualization of assessments as organized multiple processes. Using an extension of Brunswik's Lens Model, a framework was developed for analyzing the distinct phases of assessment processes and their phase relations, both within and between assessments. The scheme incorporated a pervasively organismic conception of the environment, and localized personality neither in the observer-judge, nor in the observed-judged, but rather in their transactional relation. Divergence-convergence between different assessments was treated as a phase-specific matter, and as an important substantive question for systematic investigation. Selected features of the scheme are illustrated in an empirical application.

The science of personality is faced with the paradox that as our knowledge about human behavior gains in scope and precision, we seem to be losing our grasp of personality as organized process. Consider, for example, the intensive but quite disparate efforts to isolate universal personality dimensions (e.g., Cattell, 1959; Guilford, 1959), to investigate the factors involved in person cognition, (e.g., Cline, 1964; Taguiri & Petrullo, 1958), and to demonstrate the influence of instrumentation upon conclusions about personality traits (e.g., Campbell & Fiske, 1959; Cattell, 1961). The problem of theoretical integration is illustrated by the fact that phenomena considered focal in one area typically are treated as mere sources of error in another. Thus, for example, while the attributes of personality judges may be of primary concern in studies of person cognition, the investigator who intends to discover universal traits will treat these same attributes as sources of bias to be controlled.

While students of personality recognize the need to bridge these gaps, they are less clear about how this

important task can be achieved (Sanford, 1963). It is usually implied that we will be in a much stronger position to formulate the necessary linking concepts and methods only after the separate areas are more fully understood. Cattell (1959) makes the somewhat different suggestion that we are now in a position to develop specification equations that appropriately weight and combine the dominant influences of each domain. Such articles of faith cannot be rejected *a priori*, as they depend upon the outcomes of research; nor does it seem reasonable to assert that the requisite confirming or disconfirming evidence is now at hand. Nevertheless, it shall be argued that these solutions remain incomplete, and that what is required is a more explicit formulation of the tasks of personality research along the lines suggested by transactional theory (Cantril, 1950; Dewey & Bentley, 1949; Ittelson, 1962; Kilpatrick, 1961; Mead, 1938; Shibutani, 1961), and probabilistic functionalism (Brunswik, 1952, 1956; Hammond, 1955; Heider, 1958).

ASSESSMENTS AS ORGANIZED PROCESSES

It has become clear that inferences about personality are highly contingent upon the variable features of assessments (e.g., Bronfenbrenner & Ricciuti, 1960; Campbell & Fiske, 1959; Cattell, 1961; Fiske, 1963; Holtz-

¹This article was made possible by the author's association with the Purdue Longitudinal Study. The author wishes to express his gratitude to Hadley Cantril, Kenneth R. Hammond, William E. Martin, Charles D. Smock, and Frederick J. Todd for their encouragement and critical comments on the work reported here.

man, 1965; Soskin, 1954). Many factors are involved, such as item sampling, whether the subject or external observer serves as judge, response sets, and so forth. As already suggested, investigators have typically reacted to this state of affairs by adopting the strategy of first isolating the major sources of variance, then subjecting each to intensive study, and finally, if ever, seeking bridging concepts and methods. While this approach has been able to capitalize upon certain readily abstracted features of assessments, it has also typically neglected the *processes* that characterize personality appraisals. Because it fails to conceptualize and study assessments as organized process, this strategy seems to be refractory to the problem of constructing a more integrated view of personality.

The basis for a process approach lies in a different conceptualization of the variable features of assessments. Rather than viewing these as independent sources of variance to be isolated first and recombined later, they are taken more simply as *reference points in designating specific transactions*. Information about subject population, instrumentation, etc., is essential for specifying the *materials* that go into assessments, and in some

instances can lead to hypotheses about assessment *outcomes*, but such information does not describe the intervening processes themselves. An integrated view of personality depends upon more direct systematic investigations of the distinct *phases* of assessments and the relations among phases. Whether the observer-judge is a scientist or subject, and whether the observed-judged is the self or another person, it is believed that similar processes are involved. Thus, for example, the personality "structures" discovered by researchers and the personality "attributions" of everyday life are considered to be formally indistinguishable; both are seen as occurring at similar phases of the total process, and as having the common function of giving meaning and stability to experience in the service of broader adaptive requirements (Heider, 1958; Kilpatrick, 1961).

In order to designate particular instances of these processes *taken as a whole*, they shall henceforth be referred to as *perspectives*. Perspectives, so defined, become an integral unit for personality investigations.

A LANGUAGE FOR DESCRIBING PERSPECTIVES

Hammond, Hursch, & Todd's (1964)

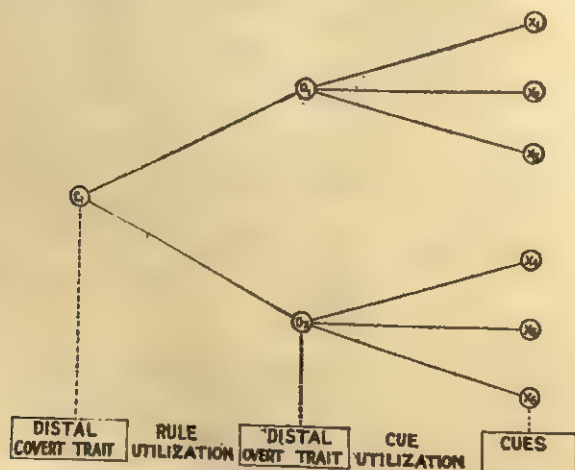


FIG. 1. Organismic Side of the Double Lens Model.

extension of Brunswik's Lens Model (1952, 1956) to form a double lens provides a general framework for the analysis of perspectives. Figure 1 illustrates the present translation of the organismic side of the double lens scheme, and includes the following: (1) A set of cues used in judging personality; (2) Weights given these cues in the judgmental process; (3) A set of dimensions on which distal judgments are made about *overt* traits; (4) A set of premises upon which are based more distal judgments about *covert* attributes; (5) Processes that link overt traits to covert attributes.

The present model assumes that there are at least three basic phases in the appraisal of personality, differing according to extent of distality. Starting with cues as "brute facts", these become organized at the next phase by means of "quasi-rational" (Brunswik, 1952) inductive processes to form overt distal traits (e.g., activity-passivity) which in turn are related, presumably by means of deductive processes (Levy, 1963; Sarbin, Taft, & Bailey, 1960) to theoretical entities (Meehl, 1960), here called covert distal attributes (e.g., orality). Although not strictly required, there may be important instances when events at each level vary quite independently of events at other levels. Thus, for example, two personality assessors holding different theories might use essentially the same cues, weights, and overt traits, but differ in their handling of covert attributes. Or, two theorists of the same school having differing amounts of experience could use the same cues, overt traits, and covert attributes, but differ with respect to their weightings of cues (e.g., Hammond *et al.*, 1964).

The scheme can be flexibly coordinated to an individual or group composite, to single or multiple settings, and to single instruments or a variety of information sources. It encompasses a broad range of problems and methodologies, ranging from Heider's

(1958) comprehensive analysis of determining and mediating factors in the everyday cognition of personal intent, to studies in which experimental control is exerted over distal stimuli or responses, including those relating to awareness (e.g., Rommetveit, 1960) and changeability (e.g., Hammond, Wilkins & Todd, 1966) of the processes involved. No *a priori* limits are placed upon the spatio-temporal sizes of the units conceptualized as cues; indeed, the scheme reveals how little we know about perspectives that arise when these units are extended microscopically, say to the behavior episode (Barker & Wright, 1955), or macroscopically to broad life themes (Sanford, 1963). Furthermore, since the scheme incorporates the *functions* served by tests and other assessment techniques, it is readily coordinated to the specifics of the assessment procedure itself. For any target perspective, cues are the discriminated features of the persons appraised. Instruments enter in at this level as detection devices. In so far as scores or profiles are derived from instruments, they serve as extensions (Hammond, 1955) of processes at the inferential level, used to characterize overt traits. Finally, overt traits are coordinated by means of premises and combination rules (theories) to arrive at cognitions about underlying attributes.

THE PROBLEM OF THE ENVIRONMENT

In a complete lens model account, distal stimuli on the environmental side are linked to distal judgments on the organismic side through a cue-mediated process (Brunswik, 1952, 1956; Hammond *et al.*, 1964). Furthermore, it is commonly assumed that distal stimuli can be known objectively, whereas distal judgments are necessarily less-than-perfect subjective representations of the "real" object. But to make a fundamental distinction between knower and known at this point would reintroduce the very sort of dilemma that the present analysis attempts to avoid! From a transactional

standpoint (Rommetveit, 1960), the general solution of this basic problem is a conceptualization of the environment as *another perspective, mediated by a common set of cues*, as illustrated in Figure 2. This solution not only relieves us of the unproductive task of attempting to demonstrate the "rock-bottom reality" of distal stimuli in personality research, but as will be shown later, it provides an explicit framework for studying possible congruences among perspectives.

Because this solution is so fundamental to the analysis, it is important to clarify how it fits Brunswik's own formulation. From certain accounts of his ideas, such as the following, the present approach appears to be a radical departure from Brunswik's intent. "Psychology must insist, therefore, on the conceptual separation of stimulus and perceptual response. The specification of the stimulus must be made by means of the operations of physical measurement (pointer readings) In experimental practice, description of stimuli in terms of thing-language is often adequate. Such descriptions must, however, be regarded as temporary substitutes or expedients. All cases of ambiguity or disagreement must be resolved by operations of physical measurement" (Postman and

Tolman, 1959, p. 506).

There is no question that Brunswik felt that physicalistic reduction provides the *best* criterion of objectivity (Brunswik, 1952, 1956). On the other hand, his distinction between the ecology and the organism was not always as sharp as the above statement implies. In the first place, he was very much aware that if taken overly seriously, such a distinction cannot be squared with a functional viewpoint. "Many of the environmental stimulus variables mentioned by psychologists, such as 'physical size,' or 'physical color,' seem at first glance simply to be taken over from physics or chemistry. Others, such as 'food,' 'sit-uponableness' (William James), 'likability of a person,' etc., are obviously conceived with an eye to potential effects upon organisms. In both cases the 'dispositional' character of the definition (Carnap) is maintained, the psychological slant of the latter type of variables notwithstanding. Upon closer inspection, however, even the former reveal psychological entanglement when they appear in the context of a psychological experiment. For example, the 'sizes' of physical objects (more precisely, of physicist's objects) figuring as one of the major stimulus variables in the statistical survey of

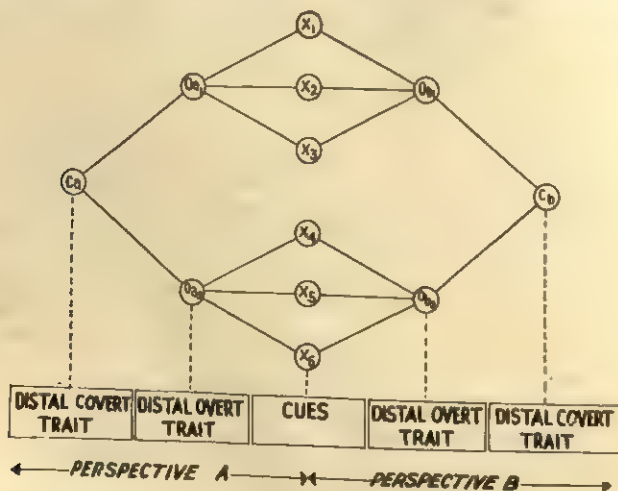


FIG. 2. Double Lens Model Adapted to Interperspective Analysis.

size constancy are in fact to be specified as 'sizes of objects of attention, i.e., of potential manipulation or locomotion, of a certain human being'" (Brunswik, 1956, p. 5).

Furthermore, Brunswik deliberately introduced an alternative, nonphysiologicistic conception of objectivity. "We may relate the concept of objectivity to what is known to the psychological statistician as test reliability. In the establishment of the reliability of a psychological test there is repeated application of the test to a sample of individuals; in replacing 'test' by 'type of observation,' and in applying this observation to a sample of environmental situations or situational elements, we may define objectivity as observational reliability . . . 'Objective,' then, is a class of responses yielding maximum reliability coefficients within or between individuals facing a common geographic situation or situational element" (Brunswik, 1952, p. 11).

Finally, Brunswik's own empirical work in the area of social perception reveals his reliance upon interjudge agreement on distal overt personality traits, such as intelligence, leadership, and likability, as "... the next best thing to the unattainable ideal of an 'objective' appraisal of (their) personalities" (Brunswik, 1956, p. 28).

In sum, although more pervasively organismic in emphasis, the present solution clearly is consistent with Brunswik's conception of the distal stimulus.

VALIDATION AND THE ISSUE OF DIVERGENCE-CONVERGENCE

The presence of a particular perspective can be established by the usual methods of demonstrating the existence of a phenomenon, including accurate measurements, estimations of reliability, and replications. However, since perspectives consist of interrelated multiple processes, so-called "technical" alterations at any phase (such as providing additional cues or training) may result in significant

changes at other phases. Alterations are legitimate and even desirable in so far as the perspective whose existence is at stake is thereby sharpened while its main features remain invariant. Indeed, by performing substitutions systematically, and by noting which alterations leave other phases of the perspective essentially intact, it should be possible to isolate certain "families" or types of perspectives, if such exist.

The task of validation in personality research has become equated, at least in part, with the demonstration of convergence. For example, it has been suggested that a trait's construct validity depends upon its regular appearance despite variations in method (Campbell & Fiske, 1959), and that its significance will depend upon its universality among subject populations (Cattell, 1959). But the multiple and variable nature of the elements of perspectives (e.g., cue contents, cue weights, overt traits) implies that divergence is the rule, and in any case, that substantive convergence is meaningless as a general *methodological* requirement. Of course, if an investigator wishes to establish a perspective's concurrent or predictive validity, he will attempt to bring about certain similarities in predictor and criterion perspectives (Stern, Stein, & Bloom, 1956). But whenever such efforts fail, say because critical divergent phases are difficult to change, it is meaningful to speak of the perspective as invalid only in the usual limited sense.

Clarification of the separate roles of validation and convergence shifts our concern away from the latter as a *standard* of personality research, and leads us to ask more interesting questions about the conditions under which convergent perspectives are achieved and maintained. Clearly, the issue of divergence-convergence is itself an important matter for investigation, basic to our understanding of interpersonal cooperation, conflict, and other social processes. Furthermore,

the present scheme (Figure 2) provides an explicit framework for investigating the scope and limits of congruence among perspectives. Congruence is operationally defined, for example, by the extent of cue overlap, similarity in cue utilization, and correspondences between overt attributions in the two perspectives. Thus, the framework can facilitate investigations of divergence-convergence at each phase of the process.

Substantive universality may still be demonstrable in a somewhat different sense. In discussing measures of person cognition, Cronbach (1955) distinguishes between "constant" processes, dealing with stereotypes measured by central tendencies, and "variable" processes, reflecting dimensionality as determined by covariance analysis. The present scheme builds in variable processes because of evidence that overt traits generally are organized as *alternative* modes of conduct (Cattell, 1957; Emmerich, 1964, 1966; Erikson, 1950; Harvey, Hunt, & Schroder, 1961; Kelly, 1955). However, it is also recognized that constant processes serve an important role as "filters"; e.g., in the selective discrimination of cues. The essential point here is that certain substantive attributions could turn out to be quite universal in the sense that they describe *either* constant *or* variable processes for a wide range of perspectives.

Because of a frequent tendency to confuse the phases of a perspective with the processes that link one phase to another, an especially interesting kind of convergence has been neglected in personality research. Suppose factor analysis reveals that two subject populations structure the same cues differently. Such divergence will usually be taken as a sign of a fundamental incompatibility between the two personality structures, and the analysis is typically stopped at this point. But by ignoring other phases of the total process, in this case the fact that both populations utilized the same cues, one fails to consider the

very real possibility of *judgmental covariation between the different traits of the two perspectives*. In Brunswik's terms, this would be an instance of high validity between "heteronomous" distal variables (Brunswik, 1956, p. 35). Such transformations are probably quite common in human affairs, as suggested by recent analyses of meaning (Whorf, 1956; Osgood, 1957), international tension (Osgood, 1962), social perception (Heider, 1958; Icheiser, 1949; Shibutani, 1961), clinical interpretation (Levy, 1963), and personality development (Emmerich, 1964, 1966). The present framework can be applied to detect transformations at each level of the process.

AN ILLUSTRATIVE STUDY

To illustrate selected features of the scheme, an empirical analysis of congruence between two perspectives will be presented. The first is derived from systematic observations of the social behavior of three-year-olds in a nursery school setting; the second is based upon these subjects in the same general setting, using teacher ratings on scales having definitions overlapping with but not identical to those of the observation categories. The details of both assessments are reported elsewhere (Emmerich, 1964, 1966; Martin, 1964), and are briefly summarized below.

Methodology

Since in the present formulation the ecological validity of a set of cues is not formally distinguishable from cue utilization, the term "perspective cue utilization" is introduced to substitute for both of these concepts. Also, the notion of intersperspective covariation of traits, or more simply, "interperspective correlation", becomes the present analogue for the concept of functional validity.

In order to perform a rigorous and complete analysis of convergences, there should be representative sampling of the discriminated cues in each perspective, application of the same

coding system to each cue set, and utilization of identical techniques for determining the overt trait dimensionality of both perspectives. These requirements are not fully met in the present illustration, as the data were collected and initial analyses performed for other purposes; nor are data available on covert distal attributes. Nevertheless, by making the reasonable assumption that the categories used by the observers belong to the same universe of cues utilized by teachers in forming their judgments, it does become feasible to estimate perspective cue utilization coefficients and interspersive correlations at the overt distal level.

Covariance methods in general (Cronbach, 1955; Koltuv, 1962; Todd & Rappaport, 1964) and factor analysis in particular are seen as appropriate for determining the dimensionality of a perspective at the overt level; i.e., each factor is conceived as an overt distal trait. In applying factor analytic procedures, we thus make the simplifying assumption that inference processes are primarily (though not exclusively) linear, an assumption not yet fully tested, but generally supported by recent evidence (Hammond *et al.*, 1964). Since most perspectives will be multidimensional, the question also arises whether the overt trait dimensions of a perspective are conceptually and empirically independent. Guided by an assumption of its "cognitive efficiency", intraperspective orthogonality is made a requirement in the present example. This step might also maximize *interspersive* multiple correlations, even when the dimensions of the perspectives compared may differ in content and/or number. However, the model does not demand orthogonality at the overt trait level, and in certain instances it may be desirable to isolate second-order factors, in which case an intermediate fourth phase is introduced that can be handled by means of a triple lens analysis.

The relevant cue domain of a per-

spective consists of all items contributing true variance to the factors that describe its dimensionality. If all such items are included in the analysis, it becomes possible to describe the processes involved accurately by applying the multiple correlational methods developed for the Lens Model by Hursch, Hammond, & Hursch, (1964). However, in order to simplify the present illustration, factors are here defined completely by their five highest loadings, and child factor scores in each perspective are computed directly from these five loadings,² rather than using more complete solutions. Therefore, the analyses that follow probably underestimate congruences, both because potentially relevant cues in the teacher rating perspective may be lost, and because the factor scores themselves become approximations of the overt distal traits. Of course, insofar as five cues approaches the maximum number that can be handled efficiently in the somewhat retrospective teacher rating task, the results will not be too far off the mark. In any case, as a consequence of this simplified procedure, the observation perspective cue utilization *R* is arbitrarily fixed at 1.00 (See Tables II and III).

Subjects and Procedure

Observation Perspective. Subjects were 38 middle-class three-year-olds (16 girls and 22 boys) who attended a university nursery school for two consecutive years. The observation perspective is based upon 12 five-minute time samples taken in the middle of the second semester during the unstructured "free play" period of the nursery program. The observer's task was first to determine whether a goal-directed act had occurred, and if so, to classify the act, if applicable, within one of seven main categories and 34 sub categories of social behavior. The main categories were: Depend-

²Specifically, individual factor scores were computed by dividing the five loadings by their respective standard deviations, and summing the products of these weights with the subject's scores.

ency, Nurturance, Aggression, Control-Dominance, Autonomous Achievement, Avoidance-Withdrawal, and Friendship-Affiliation (Martin, 1964). Thirty-one of the subcategories were used frequently enough to be retained, and inter-observer reliabilities were satisfactory for the present purpose (Emmerich, 1964).

To determine the dimensionality of the observation perspective, the children's frequency scores on the 31 subcategories were intercorrelated and subjected to a principal components factor analysis, followed by orthogonal (Varimax) rotation of six factors (Emmerich, 1964). The present analysis includes the first two rotated factors, Interpersonal vs. Impersonal Orientation, and Negative Attitude, accounting for 24% and 22% of the estimated common variance, respectively. The subcategory definitions and factor loadings on subcategories having the five highest loadings on each factor are given in Table I. The correlation between the two factors was nonsignificant, fulfilling the criterion of dimensional independence.³

Teacher Rating Perspective. At the end of the second semester, the head and assistant teachers independently rated the children on 24 satisfactorily reliable scales of social behavior developed by Beller (1948).⁴ The two ratings on each scale were combined. These combined ratings were intercorrelated and subjected to a principal components factor analysis, followed by oblique (Biquartimin) rotation of three factors, resulting in an approximately orthogonal solution. The Aggression-Dominance factor is relevant

here, and accounted for 45% of the estimated common variance in the unrotated factor matrix; the other two factors were Dependency and Autonomy (Emmerich, 1966). The rating scale definitions and five highest factor loadings on the Aggression-Dominance factor are also given in Table I.

TABLE I—Observation and Teacher Rating Factor Loadings

| Observation Perspective Interpersonal Vs. Impersonal Orientation Factor: | |
|--|---|
| Loading | Subcategory |
| .76 | Authoritarian Control |
| -.74 | Independence of Approval |
| -.69 | Being Near |
| -.57 | Persist or Complete Activity |
| -.52 | Psychological Withdrawal from Situation |
| Teacher Rating Perspective Aggression-Dominance Factor: | |
| Loading | Rating Scale |
| .89 | Threatens Children |
| .89 | Bosses Children |
| .86 | Directs Children |
| .84 | Derogates Children |
| .83 | Attacks Children Physically |
| Negative Attitude Factor: | |
| Loading | Subcategory |
| .72 | Attempt to Injure |
| .69 | Touch or Hold |
| .69 | Punish or Derogate |
| .61 | Secure Negative Attention |
| .55 | Object Possessiveness |

Single Lens Result. As seen in Table II, Interpersonal vs. Impersonal Orientation in the observation perspective was moderately congruent with Aggression-Dominance in the teacher rating perspective, both at the cue utilization and overt trait levels. The cue utilization R for Aggression-Dominance was .52, ($p < .05$), and the intersperspective r was .42 ($p < .01$).

As seen in Table III, moderate congruences were also found at both levels between Negative Attitude in the observation perspective and Aggression-Dominance in the teacher rating perspective. The cue utilization R for Aggression-Dominance was .51

³Of course, it cannot be concluded from this finding alone that these two dimensions are generally independent. Indeed, Interpersonal Orientation and Negative Attitude were significantly positively correlated in these subjects during the third semester of nursery school attendance (Emmerich, 1964).

⁴This assessment is based upon a larger sample of 53 children that included all of the subjects in the observation assessment. Also, teachers rated the children on ten additional scales not included here.

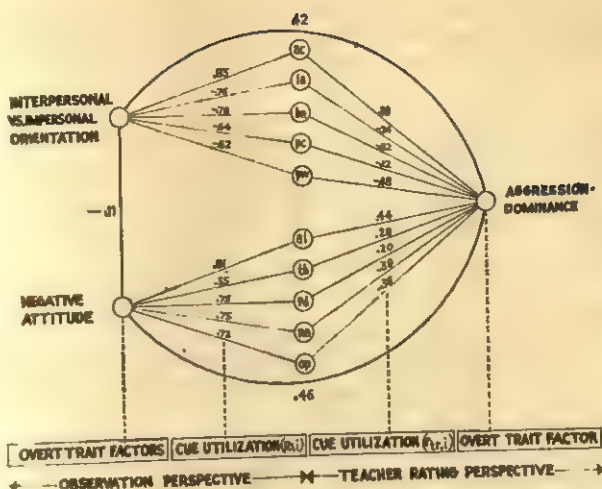


FIG. 3. Schematic Representation of Relations Within and Between the Observation and Teacher Rating Perspectives.

($p < .05$), and the interspersive r was .46 ($p < .01$).

Double Lens Result. The above analyses are combined and illustrated in Figure 3 as a double lens on the observation side, and as a single lens on the teacher rating side. The resulting interspersive multiple correlation was .66 ($p < .001$).

Interpretation. The findings reveal moderate linear congruences between the cue utilization and overt trait phases of the two perspectives. However, inspection of the sums of the difference-products in Tables II and III indicates generally poor matchings of cues.⁵ While recognizing that interpretation of specific matches and mismatches should proceed with caution (Hammond *et al.*, 1964) such interpretations shall be made here to illustrate the scheme's heuristic value for localizing the phases at which divergences and convergences occur. In the context of programmatic research

these interpretations become hypotheses to be subjected to independent tests.

As seen in Table II, the best matches for the bipolar Interpersonal vs. Impersonal Orientation dimension occurred on Authoritarian Control and Psychological Withdrawal from Situation, which are close in meaning to Aggression-Dominance and its absence, respectively; while relatively poor matches occurred on Independence of Approval and Persist or Complete Activity, having meanings that signify more than just the absence of Aggression-Dominance. Perhaps, then, this is an instance of only partial congruence at the *overt trait level*, but where such congruence was sufficient to result in significant covariation between the two perspectives at this level.

Although not feasible here, the next step ordinarily would be to determine whether the impersonal pole of the observation factor covaries with a *different* overt trait in the teacher rating perspective, reflecting a transformation. If such covariation does not occur, then we would conclude that there is a basic (though partial) divergence between the two perspectives

⁶ Indeed, the lower and upper bounds for the two intersperspective correlations are estimated to be .39 and .88, and .41 and .85, respectively (See equation 28 in Hirsch et al., 1964). Although these bounds are overestimated in this case, they provide a crude index of the extent of mis-match.

TABLE II — Convergences Between Interpersonal Vs. Impersonal Orientation in the Observation Perspective (o) and Aggression-Dominance in the Teacher Rating Perspective (tr)

| Observation Subcategory | | r_o | r_{tr} | B_o | B_{tr} | Dif-Prod. |
|-------------------------|---|------------|--------------|----------------------|----------|----------------|
| (ac) | Authoritarian Control | .83 | .39 | .31 | .16 | .07 |
| (ia) | Independence of Approval | -.76 | -.24 | -.30 | -.07 | .12 |
| (bn) | Being Near | -.78 | -.32 | -.29 | -.03 | .12 |
| (pc) | Persist or Complete Activity | -.64 | -.12 | -.24 | .04 | .14 |
| (pw) | Psychological Withdrawal from Situation | -.62 | -.48 | .22 | .38 | .02 |
| | | $R_o=1.00$ | $R_{tr}=.52$ | $R_{x_o x_{tr}}=.42$ | | $\Sigma d=.43$ |

TABLE III — Convergences Between Negative Attitude in the Observation Perspective (o) and Aggression-Dominance in the Teacher Rating Perspective (tr)

| Observation Subcategory | | r_o | r_{tr} | B_o | B_{tr} | Dif-Prod. |
|-------------------------|---------------------------|------------|--------------|----------------------|----------|----------------|
| (ai) | Attempt to Injure | .81 | .44 | .37 | .30 | .02 |
| (th) | Touch or Hold | .55 | .28 | .03 | .09 | -.02 |
| (pd) | Punish or Derogate | .73 | .20 | .35 | -.10 | .24 |
| (na) | Secure Negative Attention | .75 | .39 | .31 | .22 | .03 |
| (op) | Object Possessiveness | .72 | .36 | .28 | .09 | .07 |
| | | $R_o=1.00$ | $R_{tr}=.51$ | $R_{x_o x_{tr}}=.46$ | | $\Sigma d=.34$ |

at the overt level. And in either case, we would want to explore *why* the perspectives differ by looking at the broader adaptive requirements that each serves. For instance, if basic divergence were found in the present example, we might suspect that the child trait of impersonality is irrelevant to the primary tasks that the nursery teacher assigns to her role.

With respect to Negative Attitude, inspection of Table III reveals that the one striking mis-match occurred on the Punishment or Derogation subcategory, defined as "seeking to punish, derogate, belittle, or humiliate other children." In contrast to the other subcategories of the observation perspective, this one depends heavily upon the sorts of verbalizations and contextual detail that may not come under the teacher's purview. Therefore this could well be a case where, despite its *salience* at the overt trait level in the teaching rating perspective (See Table I), the cue ordinarily remains *unavailable* to this perspective at the level of cue detection.

SUMMARY

This illustrative study can be sum-

marized by comparing its treatment of the question of divergence-convergence with the way that this problem often is handled outside the present framework.

First and foremost, convergence was posed as a substantive rather than as a methodological question. The task was not to validate teacher ratings against systematic observations, or vice versa. Rather, each of these "techniques" was assumed to serve similar functions in relation to the assessment process in which it was embedded. Once these processes were spelled out, it became feasible to consider the extent of *their* congruence as an important question in its own right.

Rather than relying upon a global index of convergence, the several measures used each corresponded to a distinct phase of the total process. In the present illustration, moderate convergences were found at both the cue utilization and overt trait phases. Further localizations of the sources of divergence-convergence led to hypotheses about their bases, and suggested specific changes that would be

expected to result in increased congruences. Although not possible in the present example, a similar analysis of convergence at the covert level might also be conducted.

When the two techniques resulted in somewhat different personality "structures" at the overt level, this evidence for divergence in content was not taken as necessarily signifying the absence of functional convergence. Rather, the possibility of transformed covariation between different traits was also considered, and ordinarily could be evaluated within the framework.

Finally, it was emphasized that the proper explanation for basically divergent personality structures often lies not in some "fault" of the materials or processes of the assessments themselves, but rather in a more fundamental difference in the broader purposes that each serves.

REFERENCES

- Barker, R. G., & Wright, H. F. *Midwest and its children: the psychological ecology of an American town*. Evanston, Ill.: Harper-Row, 1955.
- Beller, E. K. Dependency and independence in young children. Unpublished doctoral dissertation, State University of Iowa, 1948.
- Bronfenbrenner, U., & Ricciuti, H. N. The appraisal of personality characteristics in children. In P. H. Mussen (Ed.), *Handbook of research methods in child development*. New York: John Wiley, 1960. Pp. 770-817.
- Brunswick, E. *The conceptual framework of psychology*. Chicago: Univ. of Chicago Press, 1952.
- Brunswick, E. *Perception and the design of psychological experiments*. Berkeley, Calif.: Univ. of California Press, 1956.
- Campbell, D. T., & Fiske, D. W. Convergent and discriminant validation by the multi-trait-multimethod matrix. *Psychological Bulletin*, 1959, 56, 81-105.
- Cantril, H. *The "why" of man's experience*. New York: Macmillan, 1950.
- Cattell, R. B. *Personality and motivation: structure and measurement*. New York: World Book, 1957.
- Cattell, R. B. Personality theory growing from multivariate quantitative research. In S. Koch (Ed.), *Psychology: A study of a science*. Vol. 3. New York: McGraw-Hill, 1959. Pp. 257-327.
- Cattell, R. B. Theory of situational, instrument, second order, and refraction factors in personality structure research. *Psychological Bulletin*, 1961, 58, 160-174.
- Cline, V. B. Interpersonal perception. In B. A. Maher (Ed.), *Progress in experimental personality research*. Vol. 1. New York: Academic Press, 1964. Pp. 221-284.
- Cronbach, L. J. Processes affecting scores on "Understanding of Others" and "Assumed Similarity." *Psychological Bulletin*, 1955, 52, 177-193.
- Dewey, J., & Bentley, A. F. *Knowing and the known*. Boston: Beacon Press, 1949.
- Emmerich, W. Continuity and stability in early social development. *Child Development*, 1964, 35, 311-332.
- Emmerich, W. Continuity and stability in early social development. II. Teacher Ratings. *Child Development*, 1966, 37, 17-27.
- Erikson, E. H. *Childhood and society*. New York: Norton, 1950.
- Fiske, D. W. Problems in measuring personality. In J. M. Wepman & R. W. Heine (Eds.), *Concepts of personality*. Chicago: Aldine, 1963. Pp. 449-473.
- Guilford, J. P. *Personality*. New York: McGraw-Hill, 1959.
- Hammond, K. R. Probabilistic functioning and the clinical method. *Psychological Review*, 1955, 62, 255-262.
- Hammond, K. R., Hursch, Carolyn J., & Todd, F. J. Analyzing the components of clinical inference. *Psychological Review*, 1964, 71, 438-456.
- Hammond, K. R., Wilkins, Marilyn M., & Todd, F. J. A research paradigm for the study of interpersonal learning. *Psychological Bulletin*, in press.
- Harvey, O. J., Hunt, D. E., & Schroder, H. M. *Conceptual systems and personality organization*. New York: Wiley, 1961.
- Heider, F. *The psychology of interpersonal relations*. New York: Wiley, 1958.
- Holtzman, W. H. Personality structure. In P. R. Farnsworth (Ed.), *Annual review of psychology*. Palo Alto, Calif: Annual Reviews, Inc., 1965. Pp. 119-156.
- Hursch, Carolyn J., Hammond, K. R., & Hursch, J. L. Some methodological considerations in multiple-cue probability studies. *Psychological Review*, 1964, 71, 42-60.
- Ichseier, G. Misunderstandings in human relations. *American Journal of Sociology*, 1949, 55, Part 2, 1-70.
- Ittelson, W. H. Perception and transactional psychology. In S. Koch (Ed.), *Psychology: A study of a science*. Vol. 4. New York: McGraw-Hill, 1962. Pp. 660-704.
- Kelly, G. A. *The psychology of personal constructs*. Vol. 1. New York: Norton, 1955.
- Kilpatrick, F. P. (Ed.) *Explorations in trans-*

- actional psychology*. New York: New York Univer. Press, 1961.
- Koltuv, Barbara B. Some characteristics of intrajudge trait intercorrelations. *Psychological Monographs*, 1962, 76, No. 33 (Whole No. 552).
- Levy, L. H. *Psychological interpretation*. New York: Holt, Rinehart, & Winston, 1963.
- Martin, W. E. Singularity and stability of profiles of social behavior. In Celia B. Stendler (Ed.), *Readings in child behavior and development*. New York: Harcourt, Brace & World, 1964. Pp. 448-466.
- Mead, G. H. *The philosophy of the act*. Chicago: Univer. of Chicago Press, 1938.
- Meehl, P. The cognitive activity of the clinician. *American Psychologist*, 1960, 15, 19-27.
- Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. *The measurement of meaning*. Urbana, Ill.: Univer. of Illinois Press, 1957.
- Osgood, C. E. Reciprocal initiative. In J. Roosevelt (Ed.), *The liberal papers*. Garden City, N. J.: Anchor, 1962. Pp. 155-228.
- Postman, L., & Tolman, E. C. Brunswik's probabilistic functionalism. In S. Koch (Ed.), *Psychology: A study of a science*. Vol. 1. New York: McGraw-Hill, 1959. Pp. 502-564.
- Rommetveit, R. *Selectivity, intuition, and halo effects in social perception*. Oslo: Oslo Univer. Press, 1960.
- Sanford, N. Personality: Its place in psychology. In S. Koch (Ed.), *Psychology: A study of a science*, Vol. 5. New York: McGraw-Hill, 1963. Pp. 448-592.
- Sarbin, T. R., Taft, R., & Bailey, D. E. *Clinical inference and cognitive theory*. New York: Holt, Rinehart, & Winston, 1960.
- Shibutani, T. *Society and personality*. Englewood Cliffs, N. J.: Prentice-Hall, 1961.
- Soskin, W. F. Frames of reference in personality assessment. *Journal of Clinical Psychology*, 1954, 10, 107-114.
- Stern, G. G., Stein, M. I., & Bloom, B. S. *Methods in personality assessment*. Glencoe, Ill.: Free Press, 1956.
- Taguiri, R., & Petrullo, L. (Eds.) *Person perception and interpersonal behavior*. Stanford, Calif.: Stanford Univer. Press, 1958.
- Todd, F. J., & Rappaport, L. A. A cognitive structure approach to person perception: A comparison of two models. *Journal of Abnormal and Social Psychology*, 1964, 68, 469-478.
- Whorf, B. L. *Language, thought, and reality*. Cambridge, Mass.: M.I.T. Press, 1956.
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Received December 16, 1965

Common Psychological Tests Applied to the Assessment of Brain Damage

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Summary: A recent survey by Sundberg (1961) identified the most common referral questions asked of clinical psychologists, and the tests most used by them to answer these referral questions. A common referral problem was that of the specification of brain damage, and the most common (10) tests were reviewed in terms of their efficiency as organic diagnostic indicators.

The tests were found to be of varying degrees of effectiveness for this purpose, although no test was unequivocally demonstrated to be an adequate assessment device for this purpose. A common underlying problem was the treatment of organicity as a unitary syndrome, which tended to result in a number of conceptual and methodological difficulties.

In a survey of public clinical services in the United States, Sundberg (1961) identified the most frequent referral problems with which clinical psychologists are confronted, and the measuring instruments with which they attempt to provide answers to these problems. Inherent in the majority of the referral problems was the need to assess possible organic factors, so that an evaluation of these commonly used measuring instruments as assessment tools for organic impairment is prerequisite to valid clinical inferences drawn from the results of these measures. The ten tests in most common use included the Bender-Gestalt, the Rorschach, three Wechsler intelligence scales, two draw-a-person scales, the MMPI, TAT, and Stanford-Binet. The various approaches to assessing brain damage tend to rely, as Haynes and Sells (1963) have pointed out, on diagnostic "signs", scatter patterns, some single variables, or a number of qualitative techniques.

The success of these various approaches applied to the assessment of brain damage ranges from the enthusiastic comments of Hoedemaker & Murray (1952), who feel that the clinical psychologist, with these tests, is able to detect evidences of organic brain pathology with a degree of greater accuracy than that obtained by either neurological examination or

electro-encephalography, to the skepticism of Yates (1954), who attacks the validity of such measurements, and Baker (1956), who concludes that a great deal of work remains to be done before degrees of dependability of constellations and signs can be reliably determined. Molish (1960), in a review of the literature, concluded that the last decade has seen a change in the orientation of psychological tests as applied to the general problem of organic brain impairment, with much of the change resulting from the increased application of projective methods to groups of brain damaged patients. This has emerged from the observations of a number of investigators (Halstead, 1947; Hunt, 1944; Molish, 1960) that the diagnosis of organic brain damage must involve the inseparable concepts of intelligence and personality, and therefore tends to encourage an integrative approach to the study of the disorders attributed to the impairment of brain tissue function.

Ambiguity with respect to the theoretical behavioral manifestations of brain damage has contributed substantially toward making numerous findings equivocal. Goldstein & Scheerer (1941), for example, depict this in terms of concrete and abstract attitudes, and predict that brain damaged patients, with their more con-

crete approaches, will tend to reorganize stimulus elements qualitatively in the direction of simplification, and this has been incorporated by Gestalt theory in the scoring of the Bender-Gestalt (Bender, 1933). Operating within their frame of reference, Goldstein & Scheerer found that the organic does not profit from experience as readily as the normal. Crookes, (1961), furthering the investigation of the inability of the organics to profit from new experience, found that a deterioration of "hold" vs. "don't hold" items was of little value in diagnosing organics from normals, or in differentiating them from other psychiatric groups (Yates, 1954; Hall, 1952; Rogers, 1950). When Crookes applied a differential weighting scheme to his ratios, however, he found them to be good indications of organicity, thus serving to focus on the artifactual nature of the arbitrary values attributed to such formulations. A number of investigations have concluded that, within such a framework, the diagnosis rests on tenuous assumptions, since the diagnostic signs may be properties of the stimulus (Griffith & Taylor, 1961; Hannah, 1958; Hovey, 1961; Shapiro, 1952; 1953). The ambiguity inherent in the assumptions of the nature of brain damage becomes the more exaggerated in the fact that the measurement is usually indirect, typically being defined in terms of what the tests are assumed to measure (Reitan, 1962).

Yates (1954) has pointed out that most theories of brain damage hypothesize one or another classification of brain damage, and may therefore lead to erroneous assumptions in test construction and erroneous conclusions in test interpretation. This may be a critical factor in discrepant results of assessments using various instruments, since, as brain damage is not a unitary syndrome, each test may in effect be measuring a different functional entity, much like the three blind men describing the elephant. The corresponding common fault of this unitary

classification is the unrestricted use of various types of brain damage in single samples: this is undoubtedly sufficient to account for a large portion of the variance in contradictory findings. A considerable accumulation of evidence (Anderson, 1951; Anderson & Hanvik, 1950; Belmont & Birch, 1960; Doehring & Reitan, 1960; Fisher, 1958; Kooi, Boswell & Thomas, 1958; McGaughan & Moran, 1957; McMurray, 1954; Reitan, 1954, 1955a; Semmes, Weinstein, & Teuber, 1954; Sindberg, 1961) indicates that there are many variations in the performance of brain damage individuals with many contributory influences. Since these various factors are typically left uncontrolled, however, the very fact that tests often do discriminate between brain damage and non brain damaged patients may indicate that these tests are capable of making finer predictions than their variances would indicate.

METHODOLOGICAL CONSIDERATIONS

One operational problem which immediately confronts the investigator of brain damage in humans is that the independent variable is nearly always beyond his direct control. Although comparative experimentation is not necessarily hampered by this consideration, it is in the higher nervous system that the human beings differ most from all other species of animal, so great caution must be stressed on generalizing from infra human organisms to man. As Uhr & Miller (1960) have pointed out, many behavioral measures, such as those due to individual differences and effects modifiable by experience, are essentially human variables which are difficult or impossible to isolate in lower species.

A number of studies have been published with major methodological inadequacies in terms of the generalizations that were made from these studies. The most common of these inadequacies are characterized by using small numbers of subjects, having no control group, ignoring base rates, and

not controlling for (or partialling out) contaminating extraneous variables.

It would appear that investigators interested more in qualitative than quantitative measure of brain damage tend to use a more idiographic approach, with a corresponding small number of subjects. Rorschach, for example (1942), in his standardization sample for brain damaged patients, used a total number of 15 individuals. Bender (1933) used a group consisting of 8 patients with known brain damage. Machover (1947) further had a small number of brain damaged subjects in her original standardization sample, and similar relatively general applications have been made from small numbers of subjects. (Endicott, 1945; Griffith, 1951; Harrower-Erickson & Miale, 1940; Kelly & Marguiles, 1940; Parsons, 1943; Tallman, 1937; Zangwill, 1945).

Another characteristic methodological shortcoming of investigators interested more in qualitative assessment of brain damage is their lack of any sort of control group. Typical among these were Atwell (1950), Hutten & Bassett (1948), and Landisberg (1927), who included no "normals" of any sort in their comparisons, and Stauder (1944), Machover (1947), Harrower-Erickson & Miale (1940), Parsons (1943), Tallman (1937), who variously inferred brain damage in epileptics, suicide attempters, and institutionalized retardates, without any external controls.

A problem that concerns evaluation of effectiveness is the need to compare validity measures with base rates. As Meehl and Rosen (1955) have pointed out, the practical value of a test should be measured by how well it improves upon an already achieved level of experience. Since the base rate of incidence of organic brain damage in a general population is likely quite different from incidences of this phenomenon with an institutionalized psychiatric population, it is of little value to discuss percentages of "hits" in a given setting and expect it to apply to

all others. The problem of differential risks also becomes an important factor in the directionality of wrong decisions. As Cronbach & Gleser (1957) point out, it is often important to apply different weights to false positives and false negatives, so that the establishment of base rates for given settings and for given decisions is mandatory for maximizing the value of clinical judgments (Hovey, 1961; Howard & Shoemaker, 1954; Wahler, 1956). The need for base rates in the assessment of brain damage by psychological tests has been further demonstrated by Hanvik (1953) and supported by Frank, Corrie, & Fogel (1955) and Wittenborn (1952). Illustrative of the effects of this consideration was the study by Chorost, Spivak, & Levine (1959). They were able, in a well controlled study, to significantly ($p = .05$) discriminate between brain damaged and non brain damaged subjects on the basis of rotations on the Bender-Gestalt. But as Toler & Schulberg point out (1963, p 122) since the base rate of the criterion measure, abnormal EEG records, was 63% for their sample, their Bender predictions of 65% correct was no clear improvement on "hits". Over a wider range of settings, Eckhart (1961) has shown that geographic base rates may be an important consideration.

A number of extraneous factors have been identified which can significantly affect the accuracy of brain damage diagnosis. Riklan & Diller (1961) have shown that the temporal relation of testing for brain lesions to surgery is a significant variable, and their findings have been corroborated in an institutionalized setting by Shaw & Cruickshank (1956). Measuring subjects before and after chemosurgery, they found a temporary worsening of performance on tests for brain damage immediately after surgery, which subsequently reverted to preoperative levels after several months. The significant effect of intelligence on various measures of brain damage was demon-

strated by Stewart & Cunningham (1958), Griffith & Taylor (1960), Reitan (1955b), and the effects of various drugs on tests for brain damage was found to be a significant variable by Fleishman, (1960); Lehmann, (1961); Bender, (1963), and Abramson, Waxenberg, Levine, Kaufman, & Kornetsky, (1955). Further, the effects of schizophrenia have been demonstrated to exert a significantly deleterious effect on measures of brain damage (Eckhard, 1961), Hutt & Briskin (1960), making discrimination between these two groups difficult, although both significantly deviate from the performance of normals.

Perhaps the most pervasive effect on test performance of organics is the factor of the age of the subject at the incidence of the lesion. (Hebb, 1949) The effects of this variable on test performance have been shown to be significant by a number of investigators (Shapiro, Post, Lofving, & Inglis, 1956; Hanvik, 1953; Chorost *et al.*, 1959), but few attempts have been made to establish any quantitative or qualitative measures of its global effect on test performance (Belmont & Birch, 1960)

• Young and Pitts (1951) have found that race is a significant variable, and have further related this to socioeconomic class, which they also found to be a significant variable on performance of psychological tests of brain damage. Reitan (1955b) also found differences in test performance due to socioeconomic class.

Locus has been widely investigated as a prime consideration in test performance of brain damaged and normal subjects, but few unequivocal conclusions have resulted. Halstead, for example, found a significant lowering of test performance in patients with frontal lobectomies, but not with frontal lesions (1947). Reitan, however, using the same measure, was unable to differentiate between brain damaged and non brain damaged subjects (1955a). Williams and Penny-

backer (1954) established a clear correlation between memory disorder affecting all modalities of experience and tumors involving the walls and floor of the 3^d ventricle, but Scoville & Milner (1954) reported similar impairment in memory following bilateral medial temporal resection involving damage to the anterior hippocampus and hippocampal gyrus. McFie (1960) demonstrated a highly significant correlation between ventricular dilation, measured radiologically, and WAIS performance, but Meyer (1960) urged caution in interpreting this correlation. Zangwill (1960) found a link between right hemisphere lesions and disorders in various aspects of higher visual acuity, but Denny-Brown (1962) sharply contests this. Hirschman (1960) found lesions in the non-dominant hemisphere produced poorer (Bender) test performance, but Riklan & Diller (1961) reported contradictory findings. Earlier, Hanvik & Anderson (1950) had found no difference between dominant and non-dominant hemisphere damage. Reitan (1955) and Heimbürger & Reitan (1961) had reported differences in test performance between patients with right and left cerebral lesions. McFie & Piercy (1952) found that impairment of both learning and retention was related to the size of the lesion.

One problem in assessing the effect of locus is the tendency to isolate this influence from other contributory forces within the resulting pathology (Haynes & Sells, 1963). The obvious aspects of this situation are pointed out by Fitzhugh, Fitzhugh & Reitan (1961), whose study may have resulted from Yate's (1954) criticism of the concept of brain damage as a unitary factor. They found a continuum of chronicity and acuteness, which tended to complement the work of Hebb (1949) and Belmont & Birch (1960) on the temporal element of assessment.

Reitan (1959a) has demonstrated the possibility of the existence of different types of pathological brain in-

volvement which may have different psychological effects, with categories for diffuse or focal lesions, right or left hemisphere, static or progressive lesions, and subcategories of lesions such as tumors, inflammation and trauma (Haynes & Sells, 1963), Hyden (1961), citing biochemical aspects of brain activity, points out that the memory mechanism does not require a strict localization of memory centers within the brain, since the same neuron may participate as a link in many neuronal nets. Neuronal paths may grow by successive specification of the RNA molecules and the proteins formed, whereby these paths will be complicated in form but will function on a basically simple principle.

RESULTS

The Bender-Gestalt Test The Bender test has been clearly shown to be the one most frequently used when the question of organicity arises (Schulberg & Tolor, 1961). Perhaps this is partially due to its simplicity of administration, its non-verbal characteristics, its alleged freedom from cultural biases, its apparent ease of interpretation, and its presumed validity for differentiating organic from non-organic conditions (Tolor & Schulberg, 1963). Although Bender's presentation of case histories contained considerable overlap in patterns of performance attributed to various organic subgroups, lacked statistical data, and used small numbers of subjects, her astute interpretations arose from a clearly defined theory of organic performance. As Wechsler (1952) summarized it, the rationale for the clinical use of this test depends upon the facts that visual motor organization is a maturation process which may be arrested, regress after maturation is reached, and be variously affected by different neuropsychiatric disorders. In a series of publications, Hutt (1945, 1953, Hutt & Briskin, 1960) attempted to relate this theory to probable clinical significance of various test factors, but typically did this without support of any specific

research evidence. This theoretical formulation was also generally supported by the work of Schilder (1934), again with no systematic attempt to employ control groups, insure representative sampling, or quantify results. The only factor analytic study in the area was done by Guertin (1954), who acknowledged that the features he isolated may not be specific to organic dysfunctioning. He was able to isolate no single organic factor, but did identify curvilinear distortions, spatial disability, and feelings of inadequacy. Niebuhr & Cohen (1956) found a decrement in both perceptual efficiency and motor reproduction with a high correlation between age and severity of impairment. Further discrimination of the effects of age on Bender performance has been provided by Shapiro, *et al.* (1956), and by Shapiro, Field, & Post (1957). As Tolor & Schulberg (1963) point out, there is no precise experimental evidence relating to the theoretical formulations of the test, nor distinguishing the roles of perceptual, motoric, associational, and memory functions in the overall task. Peixotto (1954), with a Hawaiian sample, found that Bender functioning was not culture free.

A number of studies of concurrent validity, however, have produced encouraging results. Robinson (1953) was able to discriminate 22 paretics from 24 schizophrenic patients, and Tolor (1956) reported similar results. Hain (1964) further demonstrated the utility of a number of Bender signs for discriminating brain damaged from non brain damaged Ss, and was able to cross validate his results. He acknowledges, however, that even though his system produced few false positives, it resulted in frequent false negatives. Using both qualitative and quantitative scoring methods, Bowland & Deabler (1956) found highly significant group differences among normals, neurotics, schizophrenics, and organics. Another group of investigators (Nadler, Fink, Shontz, & Brink, 1959) also

analyzed Bender productions by both qualitative and quantitative methods, and found no significant differences between the 2 methods, although they too could differentiate the brain damaged from non brain damaged subjects. This may be due to a lower validity of diagnosis but a broader base for classification by subjective, global methods, which lacks the sensitivity of quantified approaches but makes up for this by not being limited by the assumptions of a unitary concept of brain damage.

The test has been found to discriminate between organic and familial mental retardates by a number of investigators. Bensberg (1952), in a well controlled study of over 300 subjects, found that the Bender significantly discriminated between the two groups, and this was validated in another well controlled study (Feldman, 1952), and further supported by Baroff (1957). One big value of these investigations is that they have controlled for the effects of intelligence. Griffith & Taylor, for example (1960), using more than 1000 subjects, found significantly more rotation errors with organics than non organics, but subsequently found (1961) that there was a significant relationship between intelligence and rotations. This factor had typically not been controlled in a number of earlier studies, (Hutt & Briskin, 1960; Stewart & Cunningham, 1958).

A useful feature of the test which appears to have been largely ignored is its predictive validity. Only one study in this area is reported, in which Nadler *et al.* (1959) attempted to predict the likelihood of adjustment to a sheltered workshop, with some success.

Goldberg (1959) demonstrated that the test functioned as an organic diagnostic tool relatively independent of the user. He found no significant differences between experienced clinicians, psychology trainees, and non psychologists, and this was further demonstrated by Nadler, *et al.*

(1959); Bowland & Deabler, (1956); and Pacella, (1962).

A number of studies on the effects of surgical intervention (Calden & Carp, 1951; Calden, 1953; Munz & Tolor, 1955; Riklan & Diller, 1961) indicate little deterioration on Bender performance after surgery, but this is not clearly conclusive, since the pre-surgical condition was generally sufficiently pathological to have exerted a depressive effect on Bender performance. This is particularly emphasized by the fact that there was typically some improvement in perceptual-motor functioning after surgery (Tolor & Schulberg, 1963). As a number of investigators have pointed out, however, the test does correlate well with a number of other measures of organicity. Barnes (1950), in a study of over a thousand subjects, related Bender performance to EEG abnormality, and Hanvik (1953) found similar relationships with children. In a well designed study, Chorost, *et al.* (1959) further substantiated the relationship of Bender performance and EEG abnormality, but cautioned against undue optimism, since the diagnostic efficiency was low when compared with the known base rate of abnormal EEGs.

The Rorschach Test. Although in his original sample Rorschach (1942) included 46 organic patients, his findings were not presented in a sufficiently systematic manner to relate them to organicity in general (Molish, 1960). His sample included epileptics, paretics, and senile demented all under the heading "organics." Clinical and anecdotal reports, however, indicate that the Rorschach is a very efficient tool for the diagnosis of brain damage. Bohm, for example (1958, p. 251) comments, "The organic psychopathies can almost always be clearly differentiated from the genuine psychopathies by means of the Rorschach test," and Armitage (1946) suggests that the Rorschach is superior to all testing methods in the area of organic dis-

turbances, including clinical and physical methods, the neurological examination, EEG, skull and X-ray examinations, and pneumocephalogram (Fisher & Gonda, 1955). Piotrowski (1937) found ten signs of organicity in Rorschach responses, the presence of at least five being associated with an organic diagnosis. Rorschach investigations of large samples of epileptic patients have been done by Stauder (1944), and by Guirdham (1935). Stauder was able to differentiate between the traumatic and idiopathic cases. Guirdham found no constant reaction type among epileptics when grouped together and compared with normal controls. His work was confirmed by Selinsky, Klopfer, & Emory (1936), and by Harrower-Erickson (1941). Frankel & Benjamin (1934) observed that frontal lobe patients emphasized the impossibility of producing a "W" perception, based on the inability for analytic-abstract thinking characteristic of such impairment. Generally similar conclusions were reported by Goldstein & Scheerer. (1941).

Although encephalitic patients have been included in numerous groups of patients studied, few studies are reported which singularly concern themselves with this type of specific disorder. The majority of these studies using the Rorschach are reported in the foreign literature, and concentrate on the post-encephalitic or more chronic types of patients (Molish, 1960). Rorschach (1942) presents a protocol of a single patient in an acute phase of encephalitis lethargica, and Klopfer & Kelly (1942) report that encephalitics will have 3 or more M responses, and so are not detected by Piotrowski's method. Endacott (1945) found only 3 of Piotrowski's signs in post-encephalitic patients, and this parallels the findings of Jelliffe (1922) with Parkinson patients. Shaskan, Yarnell, & Alper (1942) also reported similar findings with Parkinson patients.

The "sign" approach to organic

brain damage diagnosis has been attacked by empirical findings on a number of counts. In a factor analytic study of "organic sign" approaches, Hughes (1948) reported that Piotrowski's signs were only effective 20% of the time, and proposed that his signs could identify 82% of organic cases without falsely including any non organics. Hertz & Loehrke (1955) criticized both Piotrowski and Hughes, on the grounds that their signs could not discriminate organics from neurotics and psychotics. They were supported by Diers and Brown (1951), who reported that Hughes' signs did not discriminate between intracranial pathology and low intellectual endowment. Aita, Reitan, & Ruth (1947) found Piotrowski's signs, other than M, automatic phrases and impotence, occurred only in cases of mild brain injury. Kral & Dorken (1951) studied groups of patients with lesions in the diencephalon, basal ganglia, extrapyramidal tract, and cerebral cortex, and found the only significant sign was a lack of color responses in patients with diencephalic lesions. Parsons (1943) sectioned the corpus callosum, and found no significant differences in pre- and post-operative Rorschach signs. Ackerly & Benton (1948) found none of Piotrowski's signs resulting from cerebral deficit involving the frontal lobes. Earlier, Piotrowski (1937) had found 7 of 10 signs with frontal and temporal lobe atrophy, so that Ackerly & Benton findings might tend to suggest his signs resulted from temporal lobe damage. However, both Machover (1947) and Nadel (1938) found evidence of Piotrowski's signs when the left or both frontal lobes were impaired, as confirmed by neurological diagnosis. Harrower-Erickson & Miale (1940) reported distinct patterns between local and diffuse lesions, which would tend to suggest that the presence of "signs" may be a function of total mass involved. Lisansky (1948) found more signs of organicity in short term epilepsy than in longer term

epilepsy, and his findings complemented those of Arluck (1941). Kelly & Marguiles (1940) found no evidence of organic signs in epilepsy of non-focal origin, and Kogan (1947) contraindicated any typical personality in children with epilepsy when matched with children without epilepsy manifesting the same adjustment problems. Brussel & Hitch (1950) reported that the presence of any 5 or more of Piotrowski's signs in Rorschach responses was evidence of an organic lesion in the central nervous system. Their conclusions were, however, very vaguely phrased, and lacking in statistical verification. Eckhardt (1961), investigating their conclusions, found they could be alternatively explained in terms of mental deficiency or schizophrenia, and further found that the presence or absence of organic signs might be related to geographic factors, due to differential criteria of diagnostic categories in different locations. His findings were further supported by Wittenborn (1952), and by Frank, *et al.* (1955).

With respect to frontal lobe involvement, Tallman (1937) found no signs of decline in Rorschach functioning after removal of large portions of the frontal lobes, but Yacorzynski, Boshes & Davis (1948) and Hutton & Busset (1948) found a difference after leukotomy and this was further confirmed by Atwell (1950). Hunt (1944), however, reported that both pre and post operative leukotomy patients differed from a normal control, and found a more intense constriction in responses in the first 2 weeks after leukotomy, and Jones (1949) confirmed Hunt's findings.

Orchinik, Koch, Wycis, Freed, & Spiegel (1950) found no effect on Rorschach responses from thalamic lesions, nor between pre and post thalatomy Rorschach responses. In the absence of further work in this area, either contradictory or confirmatory, a tentative hypothesis that thalamic involvement is not operative in

Rorschach responses seems justified.

Other approaches, using multivariate criteria such as either configurational or qualitative elements, report somewhat better success, but results are still equivocal. Hertz & Loehrke (1955) found that a combination of qualitative and configurational aspects of the Rorschach, with 8 or more of 20 possible configurational arrangements being associated with organicity, gave significant differences between organics and non-organics. Benton & Howell (1941) also found the Rorschach to be a reliable organic indicator. Zangwill (1945) used a repeated testing application of this general approach, and found a decline in paraphrastic and peculiar responses over time with acute lesions, presumably as the acute effects of trauma subsided. Harrower (1950), and Harrower & Kraus (1951) found no configurational pattern among multiple sclerotic patients, with only 4 of 140 patients being discriminated by this method. This work was supported by the findings of Grinker, Ham, & Robbins (1950), who also concluded that no single Rorschach personality type characterizes the multiple sclerotic patient. The major criticism of the global approach comes from Reitan (1959a, 1959b), who points out that this approach assumes that the abilities of brain damaged patients are not measurable on some continua and interrelated comparable to those of non brain-damaged individuals. He demonstrated that the abilities which are impaired in brain damaged individuals appear to be the same as those found in the non brain damaged, and so concluded that the difference is quantitative, not qualitative. In a series of well controlled studies relating test performance to empirically demonstrated brain damage, he reports some success in diagnosing brain damage with the Rorschach, but regards it as inferior to other available methods.

Wechsler Intelligence Scales. As Wechsler (1949, p. 1) has pointed out, the Wechsler Intelligence Scale for

Children (WISC) has grown logically out of the Wechsler-Bellevue Intelligence Scales, and the Wechsler Adult Intelligence Scale (WAIS) is largely derived from the Wechsler-Bellevue Scales, so the three will be referred to collectively in terms of their ability to detect organic pathology. Since in many cases there is no information available about patients' premorbid level of functioning, these scales are often used to measure discrepancies between "hold" and "don't hold" subtests. "Hold" tests on the W-B, for example, are Information, Comprehension, Object Assembly & Picture Completion, and similar for the WAIS, with Vocabulary substituted for Comprehension. "Don't hold" tests would include Digit Span, Arithmetic, Digit Symbol, and Block Design. By calculating a deterioration quotient, if an individual shows a loss greater than 20% it would be considered a sign of definite deterioration, corresponding roughly to a deviation of 2 P.E. from the mean. Wechsler himself acknowledges the lack of supporting data from other studies (1958, p. 213), and reports that this is largely supported by his own experience. Klebanoff, Singer, & Wilensky in their 1954 review of the literature, concluded that, for the most part, correlations between specific localized brain lesions and performance on particular tests are both limited and inconsistent. These reviewers analyzed the consequences of a number of brain lesions and ablations, and found significant changes in pre and post operative scores for only 4 of 12 studies. Three of these 4 had six or fewer subjects, and all four had some other complicating factor, such as neuroticism. None of the changes were significant beyond the .05 level, and some of these were by the author's calculations rather than psychometric measurement. Yates (1954) showed poor evidence for the value of the deterioration ratio in diagnosing brain damaged patients from normals, or from other psychiatric groups, and his

findings were in agreement with those of both Hall (1952) and Rogers (1950). Crookes (1961), with 261 Ss, had previously found the Wechsler deterioration ratios to be of little value for diagnosing brain damage. A number of other investigators have concluded that the use of the Wechsler scatter patterns (Allen, 1949; Cohen, 1955; Gjesuik, 1957; Jastak, 1953; Wittenborn & Holzberg, 1951), and a series of factor analytic studies (Cohen, 1952 a, b,) demonstrated that the Arithmetic, Picture Arrangement, Block Design, Digit Symbol and Picture Completion subtests did not measure the same common factor in 3 different diagnostic groups. More extensive work in ablations shows that in most cases no general loss occurs as measured by these scales (Mensch, Schwartz, Matarazzo, & Matarazzo, 1952; Matarazzo, 1955). Weinstein & Teuber (1957), however, as well as Morrow & Mark (1955), have found a "patterning" on organic cases. Typical performance of the organic patients was characterized by low Digit Symbol, Digit Span, Block Design, Arithmetic and Similarities, and consistently lower performance than verbal I. Q.'s. These findings are consistent with those of Allen (1947), and Anderson (1951), who attempted localization of lesions by means of W-B subtests. Morrow and Mark found that lesions in dominant (left) hemispheres showed loss in both performance and verbal I. Q.'s. This may be due in part to the nature of functions usually tested such as language and verbal comprehension and an impairment in motoric aspects of block design and digit symbol. Weinstein and Teuber (1957) conclude that those areas where lesions cause increasing deterioration of W-B performance are left parietal and temporal, left occipital and frontal, then right parietal and occipital, and least, right frontal lobe. However, a number of investigators (Rylander, 1957; Halstead, 1947; and Goldstein and Scheerer, 1941) disagree with this pro-

posal. In any case, it seems safe to conclude that the effect of laterality on intellectual function is not resolved.

Hewson (1949) proposed ratios between combinations of subtests. Bryan & Brown (1957) reported only 8% false negatives with Hewson's ratios. Hewson's method has the advantage of not depending on the assumption of a typical scatter pattern for brain damaged patients. Hirschenfang (1960) however, agreed with the psychometric test patterns of organic brain pathology described by Wechsler (1958).

When Kahn (1953) divided patients into normal and abnormal EEG pattern groups, he found no difference between the two groups on full scale I.Q.'s. He interpreted his findings as supporting Hebb's hypothesis that the EEG indicates cortical dysfunction rather than intellectual deficit. Polatin, Strauss and Altman (1940) had previously observed a correlation between EEG abnormality and decline of abstract reasoning. Pollack (1955) found similar organic test patterning, and also found elements of spatial inattention similar to those reported by Teuber and his co-worker. (Teuber, Battersby & Bender 1951; Teuber and Weinstein, 1954).

Wechsler (1958, p. 166) points out the various difficulties of obtaining true statistical configurations from test score data, and states the liabilities in profiles, summations of weighted scores, discriminant functions, and configural scoring; and Meehl (1954) has further discussed patterning problems. It would appear that there may be some promise in the diagnosis of brain damage via subtest scatter approach, but as Wechsler points out, (1958, p. 167) the job of finding unique combinations for diagnostic purposes will have to be a piecemeal procedure.

Draw-A-Person Tests. Goodenough (1926) first introduced the method of measuring intelligence in children by the drawing of the human figure. She

later (1931) described it as a measurement of mental growth, and later research efforts have adopted this test method for extensive use in studying the effects of brain impairment in body image (Molish, 1960).

Bender (1949) reported that in the drawing of a man in organic brain damage, children always reflect the specific neurological disorder present. Machover (1950), in discussing the human figure drawings of brain damaged subjects, reports a large incidence of disproportionately large heads, and Vernier (1952) also found a number of "Signs" associated with brain damage, including large heads and head and neck distortions. Machover (1950, 1951), however, also reports that this disproportion may also be due to mental subnormality, educational disability, fantasy preoccupation or dependency.

Freed and Pastor (1951) studied the effects of thalamotomy with reference to body image and found that thalamotomies typically do not result in any persistent distortions of the body image. They did however, note acute but reversible changes in the first post-operative month. Machover (1947) found that frontal lobe injury produced a stable decrement in drawing the human figure.

Perhaps the most promising use of the draw-a-person tests is in combination with other tests of general intellectual ability. Bender, for example, finds that post-encephalitic patients have a lower draw-a-person M.A. than their Stanford-Binet mental age, due to a fairly specific impairment in drawing the human figure. In this sense the human figure drawing appears to be used as a "don't hold" test item, with general intellectual performance serving as the "hold" or more stable aspect of behavior. This approach was further validated by Neal (1942), and by Shaskan, Yarnell, and Alper (1943).

Minnesota Multiphasic Personality Inventory. Despite the fact that over six hundred scales have been devel-

oped for the MMPI (Welsh & Dahlstrom, 1956), there has been relatively little conclusive work demonstrating clear cut evidences of its ability to discriminate between brain damaged and non brain damaged individuals. Froncey (1950) and Richards (1952) used MMPI item responses to discriminate epileptics from normals. Froncey's scale did not stand up under cross validation and Richards did not attempt cross validation. Graham (1958) found a negative relationship between seizures and scales 5 and 7. Wheeler (1946) reported some relationships between MMPI scores of non-traumatic epileptics and EEG types, but this was not confirmed by other investigators. Hovey, Kooi, & Thomas (1959) developed a special scoring key based on item analysis, and found it of some utility, but felt that profile configurations were more promising. Using 14 configural signs, they were able to discriminate epileptic from psychiatric patients beyond the .001 level. A more recent investigation of their system by Jordan (1963) concluded that their signs are not generally valid for either epilepsy or brain damage in general.

Anderson and Hanvik (1950) published patterning data on profiles from patients with either frontal lobe damage or parietal lobe involvement, and Friedman (1950) and Williams (1952) have developed special keys for the MMPI on the basis of the locus of relatively restricted cerebral lesions. Anderson and Hanvik (1950) suggested the presence of some cerebral localization of the reactive patterns which influence the behavior of an individual in response to his environment and which are reflected on MMPI records. They proposed that these take the forms of anxiety neuroses for parietal involvement and dissociative-conversion reaction for frontal lobe damage.

Thematic Apperception Test. Typical approaches to the TAT do not emphasize its utility as an indicator of brain damage. For example the Eron

system of scoring (Eron, Terry, & Callahan, 1950), one widely used in numerous studies (Murstein, 1963, p. 33) did not include a brain damaged group in an initial study of 3000 stories (Eron, 1950). Perhaps most indicative of the disinclination of TAT enthusiasts to use it as a measure of brain damage is the fact that the subject index of Murstein's recent comprehensive review of this test (1963) does not have a single entry dealing with this topic.

Landisberg (1927) found that TAT productions of institutionalized epileptics were typified by indicators of passivity, but this was not significantly different from other institutionalized groups. Renaud (1946) investigated TAT productions in chronic head injury cases and compared them with productions of other diagnostic groups. There were no significant differences between groups. The head injury group did tend to be more like the psychoneurotic group than the brain diseased patients, but these slight differences were not significant.

Stanford-Binet. The Stanford-Binet, in its original form and in all of its revisions, has been aimed at producing a system for allotting to the subject's responses a classification into pass or fail (Anderson, 1951, p. 590). Supplementary scoring manuals by Pintner, Dragositz, and Kushner (1944) and by Wrightstone (1941) have mainly drawn a clearer line between pass and fail responses. Almost from the beginning, any qualitative work on the test has been aimed at such factors as rapport or subjective emotionality (Bronner, Healy, Lowe & Shimberg, 1927), and placed little or no special emphasis on the detection of underlying organic factors. Some work has been done with scatter, typically aimed at deriving some statistical method for evaluating its meaning (Harris & Shakow, 1937). Hunt & Cofer (1944, p. 984), concluding a discussion of qualitative results of intelligence tests,

stated, "The scatter approach appears now to be a blind alley."

Perhaps the reason for the lack of utility of the Stanford-Binet for brain damage assessment via configural patterning is the lack of uniform spacing at different levels of difficulty. Although a number of studies have used analyses of single test items for concurrent measures of various factors (Buhler, 1938; Young, 1941; Cruickshank, 1947; Feifel, 1949; and Murphy, 1948), the findings are rather remotely related to an understanding of organic factors, and offer but single measures of variables only tangentially related to brain damage.

DISCUSSION

Criterion. Although a number of studies refer to specific criteria for brain damage, such as neurological examination, EEG records, or some surgical validation, there appears to be no meaningful, and certainly no uniform criterion against which any psychological test can be validated. If as Hebb (1949) points out, there is a difference between cortical dysfunction and intellectual deficit, the use of electroencephalographic or pneumocephalographic validation seems meaningless; and if, as a number of investigators have insisted (Hoedemaker & Murray, 1952; Armitage, 1946), the psychological tests are the ultimate in brain damage diagnosis, there is a clear supercedence of test measures over validity criteria. Perhaps the whole criterion problem is confused by the multiplicity of theoretical approaches to the problem. One pervasive approach is to treat brain damage as some unitary syndrome, even though this approach has been severely criticized (Yates, 1954; Reitan, 1959; and Haynes & Sells, 1963) and challenged by numerous findings. (Hirschenfang, 1960; Riklan & Diller, 1961; Hallgrim & Reitan, 1958; Morrow & Mark, 1955; Anderson, 1951; Anderson & Hanvik, 1950; Reitan, 1954; Reitan, 1955.) As Reitan has

clearly pointed out (1962), the very real possibility exists that different types of pathological brain involvement may have different psychological effects; and, with this in mind, there is an increased need to investigate the possible differential types of brain pathology. Another major approach seems to be an unswerving adherence to the Gestalt principles incorporated into the Bender Test (1938), whereby the visual-motor modalities are considered critical. Recently Fleischman (1960) has emphasized the need of apparatus for making psychomotor tests, and indeed there is continually a greater tendency to depart from paper and pencil tests as exclusive behavioral indices and to employ equipment as well, partly because many of the dimensions of behavior cannot be tested by pencil and paper alone. Guyton (1956) has pointed out the importance of association areas in determining behavioral responses, and hints at the necessity in tapping the behavior potentialities of a number of brain areas besides those associated with vision, memory, and motoric responses. The Goldstein and Scheerer (1941) formulation of abstraction loss as a primary criterion of brain damage has been demonstrated to be a multivariate function (McGaughran & Moran, 1957), since there are differentiable levels of abstraction with many vectors. Further support to the multivariate concept of abstraction comes from Landis, Zubin, & Mettler (1950), and Morrow & Mark (1955).

Superficial correlations between measures of organic brain damage and results of psychological tests have occasionally given rise to spurious validity criteria. For example, the subjective flicker fusion frequency or CFF was found to distinguish brain damage approximately as well as results of the Bender test (McGuire, 1960), and so was regarded as a potential validity measure. Subsequent research, however, pointed out that correlations between the two measures were both low

and insignificant, suggesting that they are perhaps measuring somewhat different aspects of a multifacet or multivariate phenomenon.

Teuber's extensive review (Teuber, Battersby, & Bender, 1951) of disorders arising from missile wounds of the brain included defects of language, memory, intelligence and execution, all of which are, tangentially at least, assessed by various psychological tests. He also included, however, defects in audition and somatosensory functions, and these are typically ignored in common psychological tests.

Measurement. Perhaps due to the uncertainty involving the criterion, the psychological test units used in measurement of brain damage are characterized by artifactual limitations to generalizability, and do not appear to be related to any sort of theoretically meaningful scale. For example, Halpin (1955) defined a rotation error as a 90 degrees turning of the entire figure on a horizontal-vertical axis, Griffith & Taylor (1960) defined rotation errors as those involving at least a 45 degree angular displacement, and Chorost, Spivak & Levine (1959) defined rotation as a 30 degree deviation or more from the normal axis. A number of investigators, (Bender, Curran, & Schilder 1938; Hutt, 1961; Hutt & Briskin, 1960) refer to rotation errors without specifying exactly what constituted the formal scoring measure.

Another measurement artifact may be that imposed by the speed and accuracy factors involved in various measures. For example, the Wechsler (1958) Block Design, Digit Symbol, Picture Arrangement and Object Assembly are highly dependent on speeded performance, and the Rorschach latency is a factor which figures into organic diagnosis (Piotrowski, 1937). On the other hand, other Wechsler subtests are only slightly, if at all, influenced by speed elements, and Bender and Draw-A-Person performance is almost entirely free of speed considerations. As Stein (1961)

pointed out, speedscores have a high relationship with age ($r = -.549$), but have a low intercorrelation with both accuracy and improvement, and suggested that the three variables may be fairly independent. This, of course, would lead to the conclusion which Stein proposed; namely, that combined scores discriminate better than single scores, and may be a major step toward the use of multiple correlation techniques.

The base rate of comparison is seldom considered in most assessments of various tests' diagnostic efficiency, so that validity coefficients may be misleading. (Meehl & Rosen, 1955) Illustrative of this point are the findings of Hanvik (1953), and the followup of this study by Chorost, Spivak & Levine (1959). They were able to discriminate, via Bender rotations, children with normal and abnormal EEG's, at a significant level. However, since the base rate of abnormal EEG's in their sample was 63%, and since their Bender rotations produced correct decisions in 65% of the cases, this does not enhance the "hit" rate significantly beyond that which would be obtained through use of the base rate alone. Perhaps associated with the base rate concept is the band width and fidelity consideration (Cronbach & Gleser, 1957). None of the tests, except perhaps marginally the Rorschach provide for a sequential "sieve" approach from broad diagnostic screening to detailed and specific decision-making conclusions. Wechsler (1958, p. 167) has conceded the value of what he calls the method of successive sieves, but the literature seldom refers to systematic sequential decision making, on the basis of a single test, toward the assessment of brain damage (eg. Schafer, 1962).

Sample. A common fault in studies of brain damage assessment is the unrestricted use of various types of brain damage in single samples. As Haynes & Sells (1963) point out, this is undoubtedly responsible for a large portion of

the variance in contradictory findings. A considerable accumulation of evidence indicates that there are many contributory influences on variations in the performance of brain damaged individuals: (Hallgrim & Reitan, 1958, hemisphere of lesion; Semmes, *et al.* 1954, order of presentation; Fitzhugh, Fitzhugh & Reitan, 1961, resulting pathology of lesions; Belmont & Birch, 1960, temporal relation of testing to insult; Hebb, 1949, age of organism; McFie, 1960, intelligence; Riklan & Diller, 1961, temporal relation to surgery; Young & Pitts, 1951, race and socioeconomic factors; Abramson, *et al.* 1955, drugs; Peixoto, 1954, culture; Hutt & Briskin, 1960, schizophrenia; Fitzhugh, Fitzhugh & Reitan, 1961, chronicity/acuteness.) The problem of controlling the influence of relevant variables through experimental design or methodological techniques is resolvable only when these variables have been identified, and there is no assurance that there are no others which are influential on performance. The principal difficulty at present however, appears to lie in the fact that investigators tend to lump heterogeneous "Organics" into a sample: the fact that significant results emerge may be a promise of real merit in the measures, once the major sources of variance are controlled.

REFERENCES

- Abramson, H. A., Waxenberg, S. E., Levine, A., Kaufman, M. R., & Kornetsky, C. Lysergic acid diethylamide. (LSD-25) XIII. Effect on Bender-Gestalt performance. *J. Psychol.*, 1955, 40, 341-349.
- Ackerly, S. S., & Benton, A. I. Report on case of bilateral frontal lobe defect. The frontal lobes. *Res. Publ. Assoc. for Res. In Nerv. and Ment. Dis.*, 1948, 27, 479-504.
- Aita, J. A., Reitan, R. M., & Ruth, J. M. Rorschach's Test as a diagnostic aid in brain injury. *Am. J. Psychiat.*, 1947, 103, 770-779.
- Allen, R. M. A comparison of the test performance of the brain-injured and the brain-diseased. *Amer. J. Psychiat.*, 1949, 106, 195-198.
- Allen, R. M. The test performance of the brain injured. *J. clin. Psychol.*, 1947, 3, 225-230.
- Anderson, A. L. The effect of laterality localization of focal brain lesions on the Wechsler-Bellevue subtests. *J. clin. Psychol.*, 1951, 7, 149-153.
- Anderson, Gladys. Qualitative aspects of the Stanford-Binet in: Anderson, H. H., & Anderson, Gladys. *An Introduction to Projective Techniques*. Prentice-Hall, Englewood Cliffs, N. J., 1951, pp. 581-603.
- Anderson, L., & Hanvik, L. The psychometric localization of brain lesions; The differential effect of frontal and parietal lesions on MMPI profiles. *J. clin. Psychol.*, 1950, 6, 177-180.
- Arluck, B. W. A study of some personality differences between epileptics and normals. *Rors. Res. Exch.*, 1941, 4, 154-156.
- Armitage, S. G. An analysis of certain psychological tests used for the evaluation of brain injury. *Psychological Monographs*, 1946, 60, 1.
- Atwell, C. R. Psychometric changes after lobotomy. *J. nerv. ment. Dis.*, 1950, 111, 165-166.
- Baker, G. Diagnosis of organic brain damage in the adult. In: *Developments In The Rorschach Technique*. Vol. II. New York: World Book Co., 1956.
- Barnes, I. C. Electroencephalographic validation of the Rorschach, Hunt, & Bender-Bestalt tests. *Amer. Psychologist*, 1950, 5, 322 (abst.).
- Baroff, G. S. Bender-Gestalt visuo-motor function in mental deficiency. *Amer. J. Ment. Defic.*, 1957, 61, 753-760.
- Belmont, L., & Birch, H. The relation of time of life to behavioral consequences in brain damage: I. The performance of brain injured adults on the marble board test. *J. nerv. ment. Dis.*, 1960, 131, 91-97.
- Bender, L. Disturbances in visuomotor gestalt function in organic brain disease associated with sensory aphasia. *Arch. Neural Psychiat.*, 1933, 30, 514-537.
- Bender, L. Gestalt function in visual-motor patterns in organic diseases of the brain including dementia paralytica, alcoholic psychoses, traumatic psychoses, and acute confusional states. *Arch. Neural Psychiat.*, 1935, 33, 300-329.
- Bender, L., Curran, F. J., & Shilder, P. Organization of memory traces in the Korsakoff syndrome. *Arch. Neurol. Psychiat.*, 1938, 39, 482-487.
- Bender, Lauretta. Psychological principle of the Visual Motor Gestalt Test. *Trans. New York Acad. Sci.*, 1949, 70, 164-170.
- Bender, L. *An evaluation of the Bender-Gestalt Test*. In: Tolor, A., & Schulberg, H. C., Foreword. Charles G. Thomas, Springfield, Ill., 1963.
- Bensberg, G. J. Performance of brain-injured and familial mental defectives on the Bender-Gestalt Test. *J. consult. Psychol.*, 1952, 16, 61-64.

- Benton, A. L., & Howell, I. D. The use of psychological tests in the evaluation of intellectual functioning following head injury: Report of a case of post-traumatic personality disorder. *Psychosom. Med.*, 1941, 3, 138-151.
- Bohm, E. *A Textbook in Rorschach Test Diagnosis*. New York: Grune & Stratton, 1958.
- Bowland, J. A. & Deabler, H. L. A Bender-Gestalt diagnostic validity study. *J. clin. Psychol.*, 1956, 12, 82-84.
- Bronner, A. F., Healy, W., Lowe, G. M., & Shimberg, M. *A Manual of Individual Mental Tests and Testing*. Boston: Little, Brown & Co., 1927.
- Brussel, J. A., Hitch, K. S., & Piotrowski, Z. A. *A Rorschach Training Manual*. Utica, N. Y.: State Hospital Press, 1950.
- Bryan, E., & Brown, M. A. A method for differential diagnosis of brain damage in adolescents. *J. nerv. ment. Dis.*, 1957, 125, 69-72.
- Buhler, C. The Ball and field test as a help in the diagnosis of emotional difficulties. *Character & Pers.*, 1938, 6, 257-273.
- Calden, G. Psychosurgery in a set of schizophrenic identical twins: A psychological study. *J. proj. Tech.*, 1953, 17, 200-209.
- Calden, G., & Carp, A. A comparison of three projective techniques in a longitudinal study of post-lobotomized patients. *Amer. Psychol.*, 1951, 6, 343-344 (abst.).
- Chorost, B., Spivak, G., & Levine, M. Bender-Gestalt rotations and EEG abnormalities in children. *J. consult. Psychol.*, 1959, 23, 559.
- Cohen, J. Factors underlying Wechsler-Bellevue performance of three neuropsychiatric groups. *J. abnormal, soc. Psychol.*, 1952, 47, 359-365 (b).
- Cohen, J. A factor analytically based rationale for the Wechsler-Bellevue. *J. consult. Psychol.*, 1952, 16, 272-277 (a).
- Cohen, J. The efficacy of diagnostic pattern analysis with the Wechsler-Bellevue. *J. consult. Psychol.*, 1955, 19, 303-306.
- Cronbach, L. S., Gleser, G. *Psychological Tests & Personnel Decisions*. Urbana: University of Illinois Press, 1957.
- Crookes, T. G. Wechsler's deterioration ratio in clinical practice. *J. consult. Psychol.*, 1961, 25, 3, 234-238.
- Cruikshank, W. M. Qualitative analysis of intelligence test responses. *J. clin. Psychol.*, 1947, 3, 381-386.
- Denny-Brown, D. Symposium on multiple sclerosis and demyelinating diseases; multiple sclerosis-clinical problem. *Am. J. Med.*, 1952, 12, 501-590.
- Diers, W. C., & Brown, C. C. Rorschach "organic signs" and intelligence level. *J. consult Psych.*, 1951, 15, 343-345.
- Doehring, D., & Reitan, R. M. MMPI performance of aphasic and nonaphasic brain damaged patients. *J. clin. Psychol.*, 1960, 16, 307-309.
- Eckhardt, W. Piotrowski's signs: Organic or functional? *J. clin. Psychol.*, 1961, 17, 36-38.
- Endicott, J. L. Rorschach Test in postencephalitis. *Illinois Med. J.*, 1945, 88, 256-258.
- Eron, L. D. A normative study of the Thematic Apperception Test. *Psychol. Monogr.*, 1950, 64, No. 9.
- Eron, L. D., Terry, D., & Callahan, R. The use of rating scales for emotional tone of TAT stories. *J. consult. Psychol.*, 1950, 14, 473-478.
- Feifel, H. Qualitative differences in the vocabulary responses of normals and abnormals. *Genet. Psychol., Monogr.*, 1949, 39, 151-204.
- Feldman, I. S. Psychologic differences among moron and borderline mental defectives as a function of etiology: I. Visual-motor functioning. Ph.D. dissertation, University of Pittsburgh, 1952.
- Fisher, G. Selective and differentially accelerated intellectual dysfunction in specific brain damage. *J. clin. Psychol.*, 1958, 14, 394-399.
- Fisher, J., & Gonda, T. A. Neurologic techniques and Rorschach test in detecting brain damage. *A.M.A. Arch. Neurol. & Psychiat.*, 1955, 74, 117-124.
- Fitzhugh, K., Fitzhugh, L., & Reitan, R. Psychological deficits in relation to acuteness of brain dysfunction. *J. Consult. Psychol.*, 1961, 25, 61-66.
- Fleishman, E. A. Psychomotor tests in drug research. In: Uhr & Miller (Eds.), *Drugs and Behavior*. New York: Wiley, 1960.
- Frank, G. H., Corrie, C. C., & Fogel, J. An empirical critique of research with the Wechsler-Bellevue in differential psychodiagnosis. *J. clin. Psychol.*, 1955, 11, 291-293.
- Fränkel, F., & Benjamin, D. Die kritik der versuchsperson beim Rorschach'schen formentuersuch. *Schweiz. Arch. Neurol. Psychiat.*, 1934, 33, 9-14 (abstr.).
- Freed, H., & Pastor, J. T. Evaluation of Draw-A-Person Test (modified) in thalatomy with particular reference to body image. *J. nerv. ment. Dis.*, 1951, 114, 106-120.
- Friedman, S. H. Psychometric effects of frontal and parietal lobe brain damage. Ph.D. dissertation, Univ. of Minnesota, 1950.
- Froncey, Ruth. A study on the "epileptic personality". *Canad. J. Psychol.*, 1950, 4, 81-87.
- Gjesuik, A. Differentiation between organic and functional reduction determination with the help of intelligence tests. *Nord. Psychol.*, 1957, 9, 97-104 (abstr.).
- Goldberg, L. R. The effectiveness of clinicians' judgements: The diagnosis of organic brain damage from the Bender-Gestalt Test. *J. consult. Psychol.*, 1959, 23, 25-33.

- Goldstein, K., & Sheerer, N. Abstract and concrete behavior. *Psychol. Monogr.*, 1941, 43, 1-151.
- Goodenough, F. L. *Measurement of Intelligence by Drawings*. Yonkers: World Book Co., 1926.
- Goodenough, F. L. Children's drawings. In: Murchison, C. A. (ed.) *Handbook of Child Psychology*. Worcester: Clark Univ. Press, 1931.
- Graham, L. R. Personality factors and epileptic seizures. *J. clin. Psychol.*, 1958, 14, 187-188.
- Griffith, R. M., & Taylor, Vivian H. Incidence of Bender-Gestalt figure rotations. *J. consult. Psychol.* 1960, 24, 189-190.
- Griffith, R. M. Test-retest similarities of the Rorschachs of patients without retention. Korskakoff. *J. proj. Tech.*, 1951, 15, 516-525.
- Griffith, R. M., & Taylor, Vivian H. Bender-Gestalt figure rotations: A stimulus factor. *J. consult. Psychol.*, 1961, 25, 89-90.
- Grinker, R. R., Ham, G. C., & Robbins, T. P. Some psychodynamic factors in multiple sclerosis. *Res. Nerv. Ment. Dis. Proc.*, 1950, 28, 456-460.
- Guertin, W. H. A factor analysis of curvilinear distortions on the Bender-Gestalt. *J. clin. Psychol.*, 1954, 10, 12-17.
- Guirdham, A. Rorschach Test in epileptics. *J. ment. Sci.*, 1935, 81, 870-893.
- Guyton, A. C. *Textbook of Medical Physiology*. Philadelphia: W. B. Saunders Co., 1956.
- Hain, J. D. The Bender-Gestalt test: A scoring method for identifying brain damage. *J. consult. Psychol.*, 1964, 28, 34-40.
- Hall, K. R. L. Conceptual impairment in depressive and organic patients of the pre-senile age group. *J. ment. Sci.*, 1952, 98, 256-264.
- Hallgrim, K., & Reitan, R. Effect of dysphasia and spatial distortion on Wechsler-Bellevue results. *AMA Arch. Neurol. Psychiat.*, 1958, 80, 708-713.
- Halpin, Virginia G. Rotation errors made by brain-injured and familial children on two visual-motor tests. *Am. J. ment. Def.*, 1955, 59, 485-489.
- Halstead, W. C. *Brain and Intelligence: A Quantitative Study of the Frontal Lobe*. Chicago: Univ. of Chicago Press, 1947.
- Hannah, L. D. Causative factors in the production of rotation on the Bender-Gestalt designs. *J. consult. Psychol.*, 1958, 22, 398-399.
- Hanvik, L. J. A note on the rotations in the Bender-Gestalt Test as predictors of EEG abnormalities in children. *J. clin. Psychol.*, 1953, 9, 399.
- Hanvik, L. J., & Anderson, A. L. The effect of focal brain lesions on recall and on the production of rotation in the Bender-Gestalt Test. *J. consult. Psychol.* 1950, 14, 197-198.
- Harris, A. J., & Shakow, D. The clinical significance of numerical measures of scatter on the Stanford-Binet. *Psych. Bull.*, 1937, 34, 134-150.
- Harrower, M. R., & Kraus, J. Psychological studies on patients with multiple sclerosis. *Arch. Neurol. Psych.*, 1951, 66, 44-57.
- Harrower, M. R. The results of psychometric and personality tests in multiple sclerosis. *Res. nerv. ment. dis. Proc.*, 1950, 28, 461-470.
- Harrower-Erikson, W. R., & Miale, F. R. Personality changes accompanying organic brain lesions: Pre- and post-operative study of two pre-adolescent children. *Rors. Res. Exch.*, 1940, 4, 8-25.
- Harrower-Erikson, M. R. Psychological studies in patients with epileptic seizures. In: Penfield, W., & Erikson, T. C. *Epilepsy and Cerebral Localization*, Chapt. 20. Springfield, Thomas, 1941.
- Haynes, J. R., & Sells, S. B. Assessment of organic brain damage by psychological tests. *Psychol. Bull.*, 1963, (60) 3, 316-325.
- Hebb, D. O. *The Organization of Behavior*. New York: Wiley, 1949.
- Heimbürger, R., & Reitan, R. Easily administered written test for lateralizing brain lesions. *J. Neurosurg.* 1961, 18, 301-312.
- Hertz, M. R., & Loehrke, L. M. An evaluation of the Rorschach method for the study of brain injury. *J. proj. Tech.*, 1955, 4, 416-430.
- Hewson, L. The Wechsler-Bellevue scale and the substitution test as aids in neuropsychiatric diagnosis. *J. nerv. ment. Dis.*, 1949, 109, 158-183.
- Hirschenfang, S. A comparison of Bender-Gestalt reproductions of right and left hemiplegic patients. *J. clin. Psychol.*, 1960, 16, 439.
- Hoedemaker, E. D., & Murray, M. E. Psychologic tests in the diagnosis of organic brain damage. *Neurology*, 1952, 2, 144-153.
- Hovey, H. B. An analysis of figure rotation. *J. consult. Psychol.*, 1961, 25, 21-23.
- Hovey, H. B., Kooi, K. A., & Thomas, M. H. MMPI profiles of epileptics. *J. consult. Psychol.*, 1959, 23, 155-159.
- Howard, A., & Shoemaker, D. An evaluation of the memory for designs test. *J. consult. Psychol.*, 1954, 18, 266.
- Hughes, R. M. Rorschach signs for the diagnosis of organic pathology. *Rors. Res. Exch.*, 1948, 12, 165-167.
- Hunt, J. M., & Cofer, C. N. Psychological deficit. In: Hunt, J. M. (ed.) *Personality and the Behavior Disorders*. New York: The Ronald Press Co., 1944, Vol. 2, Chapt. 32.
- Hutt, M. L. Bender-Gestalt drawings. In: E. S. Shneidman, W. Joel, & K. B. Little

- (Eds.) *Thematic Test Analysis*. New York: Grune & Stratton, 1951, pp. 227-233.
- Hutt, M. L. The use of projective methods in personality measurement in army medical installations. *J. clin. Psychol.*, 1945, 1, 134-140.
- Hutt, M. L., & Briskin, G. J. *The Clinical Use of the Revised Bender-Gestalt Test*. New York: Grune & Stratton, 1960.
- Hutt, M. L. Revised Bender Visual-Motor Gestalt Test. In: A. Weider, (Ed.) *Contributions Toward Medical Psychology: Theory and Psychodiagnostic Methods*. Vol. II. New York: Ronald Press, 1953, pp. 660-687.
- Hutton, E. L., & Bassett, M. Effect of leucotomy on creative personality. *J. ment. Sci.*, 1948, 94, 332.
- Hyden, H. Biochemical aspects of brain activity. In: Farber, S. M., & Wilson, R. H. C., *Control of the Mind*. New York: McGraw-Hill, 1961.
- Jastak, J. Ranking Bellevue subtest scores for diagnostic purposes. *J. consult. Psychol.*, 1953, 17, 403-410.
- Jelliffe, S. E. Psychopathology and organic disease. *Arch. Neur. Psychiat.*, 1922, 8, 639.
- Jones, R. E. Personality changes in psychotics following prefrontal lobotomy. *J. abn. soc. Psychol.*, 1949, 44, 315-328.
- Jordan, G. L., Jr. MMPI profiles of epileptics: A further evaluation. *J. consult. Psychol.*, 1963, 27, 267-269.
- Kahn, R. L. The relation of patterns of electrophysiologic abnormality to patterns of intellectual functioning. Ph.D. Diss., N.Y.U., 1953 (abst.).
- Kelly, D. M., & Marguiles, H. Rorschach studies in the convulsive states. *Rors. Res. Exch.*, 1940, 4, 157-190.
- Klebanoff, S. G., Singer, J. L., & Wilensky, H. Psychological consequences of brain lesions and ablations. *Psychol. Bull.*, 1954, 51, 1-41.
- Klopfer, B., & Kelley, D. M. *The Rorschach Technique*. Yonkers: World Book Co., 1942.
- Kogan, K. L. Personality reactions of children with epilepsy, with special reference to the Rorschach Method. *Res. Publ. Ass. Nerv. Ment. Dis.*, 1947, 26, 616-630.
- Kooi, K., Boswell, R., & Thomas, M. Critical flicker frequency and EEG findings in patients with brain damage. *Neurology*, 1958, 8, 764-768.
- Kral, V. A., & Dorken, H., Jr. The influence of subcortical (diencephalic) brain lesions on emotionality as reflected in the Rorschach color responses. *Am. J. Psychiat.*, 1951, 107, 839-843.
- Landis, C., Zubin, J., & Mettler. The function of the human frontal lobe. *J. Psychol.*, 1950, 30, 123-138.
- Landisberg, S. A. A personality study of institutionalized epileptics. *Am. J. ment. Def.*, 1927, 15, 16-22.
- Lehmann, H. E. New drugs in psychiatric therapy. *Canad. Med. Assn. Jour.*, 1961, 85 (21), 1145-1151.
- Lisansky, E. J. Convulsive disorder and personality. *J. abn. soc. Psychol.*, 1948, 43, 29-37.
- Machover, K. A case of frontal lobe injury following attempted suicide. *Rors. Res. Exch.*, 1947, 11, 9-20.
- Machover, Karen. Drawing of the human figure: A method of personality integration. In: Anderson, H. H., & Anderson, Gladys (Eds.) *An Introduction to Projective Techniques*. Englewood Cliffs, N.J.: Prentice-Hall, 1961.
- Machover, K. A. *Personality Projection in the Drawing of the Human Figure* (A method of personality investigation). Springfield, Ill.: Charles C. Thomas Inc., 1950.
- Matarazzo, R. G. The relationship of manifest anxiety to Wechsler-Bellevue subtest performance. *J. consult. Psychol.*, 1955, 19, 218.
- Maier, H. W., & Sabom, J. C. *Der Kokainismus*. Leipzig: Thieme 1926 (abstr.).
- McFie, J. Psychological effects of sterotaxic operations for the relief of Parkinsonian symptoms. *J. ment. Sci.*, 1960, 106, 1512-1517.
- McFie, J., & Piercy, M. F. Intellectual impairment with localized cerebral lesions. *Brain*, 1952, 75, 292-311.
- McGaughran, L., & Moran, L. Differences between schizophrenics and brain damaged groups in conceptual aspects of object sorting. *J. abnormal soc. Psychol.*, 1957, 54, 44-50.
- McGuire, F. L. A comparison of the Bender-Gestalt and flicker fusion as indicators of central nervous system involvement. *J. clin. Psychol.*, 1960, 16, 276-278.
- McMurray, J. G. Rigidity in conceptual thinking in exogenous and endogenous mentally retarded children. *J. consult. Psychol.*, 1954, 18, 366-369.
- Meehl, P. *Clinical vs. Statistical Prediction*. Minneapolis: Univ. Minn. Press, 1954.
- Meehl, P. E., & Rosen, A. Antecedent probability and the efficiency of psychometric signs, patterns, or cutting scores. *Psychol. Bull.*, 1955, 52, 194-216.
- Mensch, I. N., Schwartz, N. G., Matarazzo, R. G., & Matarazzo, J. D. Psychological function following cerebral hemispherectomy in man. *Arch. Neurol. Psychiat.*, 1952, 67, 787-796.
- Meyer, A. Some recent trends in neuropathology. *J. ment. Sci.*, 1960, 106, 1181-1194.
- Milner, B. Intellectual function of the temporal lobes. *Psychol. Bull.*, 1954, 51, 42-63.
- Motish, H. B. In: Beck, S., & Molish, H., *Reflexes to Intelligence*. Glencoe, Ill.: Free Press, 1960, pp. 190-222.
- Morrow, R., & Mark, J. The correlation of intelligence and neurological findings on

- 22 patients autopsied for brain damage. *J. consult. Psychol.*, 1955, 19, 283-289.
- Murphy, L. B. The appraisal of child personality. *J. consult. Psychol.*, 1948, 12, 16-19.
- Munz, A., & Tolor, A. Psychological effects of major cerebral excision: intellectual and emotional changes following hemispherectomy. *J. nerv. ment. Dis.*, 1955, 121, 438-443.
- Murstein, B. I. *Theory and Research in Projective Techniques*. (Emphasizing the TAT). New York: Wiley, 1963.
- Nadel, A. B. A qualitative analysis of behavior following cerebral lesions diagnosed as primarily affecting the frontal lobes. *Arch. Psychol.*, 1938, 32, No. 224.
- Nadler, E. B., Fink, S. L., Shontz, F. C., & Brink, R. W. Objective scoring vs. clinical evaluation of the Bender-Gestalt. *J. clin. Psychol.*, 1959, 15, 39-41.
- Neal, J. B. *Encephalitis — A Clinical Study*. New York: Grune & Stratton, 1942.
- Niebuhr, H., Jr., & Cohen, D. The effect of psychopathology on visual discrimination. *J. abnorm. soc. Psychol.*, 1956, 53, 173-177.
- Orchinik, C., Koch, R., Wycis, H. T., Freed, H., & Spiegel, E. A. The effects of thalamic lesions upon the emotional reactivity (Rorschach and behavior studies). In: Life, stress, and bodily disease. *Res. Publ. Assoc. for Res. In Nerv. & Ment. Dis.*, 1950, 29, 172-207.
- Pacella, J. J. Inter-examiner effects on the Bender-Gestalt. *J. clin. Psychol.*, 1962, 18 (1), 23-26.
- Parsons, F. H. Eight cases of section of corpus callosum in individuals with a history of epileptic seizures; psychological tests. *J. gen. Psychol.*, 1943, 29, 227-241.
- Peixotto, H. E. The Bender-Gestalt Visual Motor Test as a culture free test of personality. *J. clin. Psychol.*, 1954, 10, 369-372.
- Pintner, R., Dragositz, A., & Kushnor, R. Supplementary guide for the revised Stanford-Binet (form L). *Appl. Psychol. Monogr.*, 1944, No. 3.
- Piotrowski, Z. Personality studies of cases with lesions of the frontal lobes, II Rorschach study of a Pick's disease case. *Rors. Res. Exch.*, 1937, 1, 65-76.
- Polatin, P., Strauss, H., & Altman, L. Transient organic reactions during shock therapy. *Psychiat. Quart.*, 1940, 14, 457-465.
- Pollack, M. Effect of brain tumors on perception of hidden figure, sorting behavior, and problem solving behavior. Ph.D. dissertation, N.Y.U., 1955 (abstr.).
- Reitan, R. Intelligence and language functions in dysphasic patients. *Dis. Nerv. Syst.*, 1954, 15, 2-8.
- Reitan, R. Certain differential effects of left and right cerebral lesions in human adults. *J. comp. physiol. Psychol.*, 1955, 48, 474-477 (a).
- Reitan, R. Investigation of the validity of Halstead's measures of biological intelligence. *AMA Arch. Neurol. Psychiat.*, 1955, 73, 28-35 (b).
- Reitan, R. Qualitative vs. quantitative mental changes following brain damage. *J. Psychol.*, 1958, 46, 339-346 (f).
- Reitan, R. The relation of the trail making test to organic brain damage. *J. Consult. Psychol.*, 1955, 19, 393-394 (c).
- Reitan, R. Differential effects of lateralized brain lesions on the trail making test. *J. nerv. ment. Dis.*, 1959, 129, 257-261 (a).
- Reitan, R. Effects of brain damage on a psychomotor problem-solving task. *Percept. mot. Skills*, 1959, 9, 211-215 (b).
- Reitan, R. Impairment of abstraction ability in brain damage. Qualitative vs. quantitative changes. *J. Psychol.*, 1959, 48, 97-102 (c).
- Reitan, R. Psychological deficit. In: *Ann. Rev. Psychol.*, 1962.
- Renaud, H. Group differences in fantasies: Head injuries, psychoneurotics and brain diseases. *J. Psychol.*, 1946, 21, 327-348.
- Richards, T. W. *Modern Clinical Psychology*. New York: McGraw-Hill, 1952.
- Riklan, M., & Diller, L. Visual motor performance before and after chemosurgery of the basal ganglia in Parkinsonism. *J. nerv. ment. Dis.*, 1961, 132, 307-313.
- Robinson, Nancy M. Bender-Gestalt performance of schizophrenics and paretics. *J. clin. Psychol.*, 1953, 9, 291-293.
- Rogers, L. S. A. A comparative evaluation of the Wechsler-Bellevue deterioration index for various adult groups. *J. clin. Psychol.*, 1950, 6, 199-202.
- Rorschach, H. *Psychodiagnostics, a diagnostic test based on perception*. Trans. by P. Leiman & B. Kronenberg. Bern: Huber, 1942. New York: Grune & Stratton, 1942.
- Rylander, R. Psychological tests and personality analysis before and after frontal lobotomy. *Acta. Psychiat. Neurol.*, 1957, Suppl. 47, 383-398.
- Schafer, R. *The Clinical Application of Psychological Tests*. New York: Int. Univ. Press, 9th ed., 1962.
- Schilder, P. Psychic disturbances after head injuries. *Am. J. Psychiat.*, 1934, 91, 155-188.
- Schulberg, H. C., & Tolor, A. The use of the Bender-Gestalt Test in clinical practice. *J. prof. Tech.*, 1961, 25, 347-351.
- Scoville, W. B., & Milner, B. Loss of recent memory after bilateral hippocampal lesions. *J. Neurol. Neurosurg. Psychiat.*, 1957, 20, 11-21.
- Selinsky, H., Klopfer, B., & Emory, M. Inferences drawn from Rorschach tests in convulsive states. *J. nerv. ment. Dis.*, 1936, 84, 322-323.
- Semmes, J., Weinstein, G., & Teuber, H. L. Performance on complex tactual tasks after

- brain injury: Analysis by locus of lesion. *Amer. J. Psychol.*, 1954, 67, 220-241.
- Shapiro, M. B. Experimental studies of a perceptual anomaly: I. Initial experiments. *J. ment. Sci.*, 1952, 98, 605-617.
- Shapiro, M. B. Experimental studies of a perceptual anomaly: II. Confirmatory and exploratory experiment. *J. ment. Sci.*, 1952, 98, 605-617.
- Shapiro, M. B., Field, J., & Post, F. An enquiry into the determinants of a differentiation between elderly "organic" and "non-organic" psychiatric patients on the Bender-Gestalt Test. *J. ment. Sci.*, 1957, 103, 364-374.
- Shapiro, M. B., Post, F., Lofving, B., & Inglis, J. Memory function in psychiatric patients over sixty; some methodological and diagnostic implications. *J. ment. Sci.*, 1956, 102, 233-246.
- Shaskan, D., Yarnell, H., & Alper, K. Physical, psychiatric and psychometric studies of post-encephalitic Parkinsonism. *J. nerv. ment. Dis.*, 1942, 96, 653-662.
- Shaw, M. C. & Cruickshank, W. M. The Rorschach performance of epileptic children. *J. consult. Psychol.*, 1957, 21, 422-424.
- Sindberg, R. Some effects of stimulus variation on spiral aftereffect in organic and non-organic subjects. *J. consult. Psychol.*, 1961, 25, 129-137.
- Stauder, K. H. Constitution and character changes in epileptics. (rev. by L. Collins). *Rors. Res. Exch.*, 1944, 8, 38-41.
- Stein, K. The effects of brain damage upon speed, accuracy and improvement of visual motor functioning. *J. consult. Psychol.*, 1961, 25, 171-178.
- Stewart, H., & Cunningham, S. A note on scoring recalled figures of the Bender-Gestalt Test using psychotics, non-psychotics and controls. *J. clin. Psychol.*, 1958, 14, 207-8.
- Straus, A. A. & Altman, M. C. Principles of education of brain-injured mentally defective children. *Bull. Forest Sanatorium*, 1940, 1, 54-60.
- Sundberg, N. D. The practice of psychological testing in clinical services in the United States. *Amer. Psychologist*, 1961: In J. R. Braun (Ed.) *Clinical Psychology in Transition*. Cleveland: Allen Co., 1961, pp. 193-197.
- Tallman, G. Personality studies of cases with lesions of the frontal lobes. III Rorschach study of a bilateral lobectomy case: A summary of the case history and Rorschach records. *Rors. Res. Exch.*, 1937, 1, 77-82.
- Teuber, H. L., Battersby, S., & Bender, M. Performance of complex visual tasks after cerebral lesions. *J. nerv. ment. Dis.*, 1951, 114, 413-429.
- Teuber, H. L., & Weinstein, S. Performance on a formboard task after penetrating brain injury. *J. Psychol.*, 1954, 38, 177-190.
- Tolor, A., & Schulberg, H. C. *An Evaluation of the Bender-Gestalt Test*. Springfield, Ill.: C. C. Thomas Co., 1963.
- Tolor, A. A comparison of the Bender-Gestalt Test and the digit-span test as measures of recall. *J. consult. Psychol.*, 1956, 20, 305-309.
- Uhr, L., & Miller, J. G. (eds.). *Drugs and Behavior*. New York: Wiley, 1960.
- Vernier, C. M. *Projective Test Productions: I. Projective Drawings*. New York: Grune & Stratton, 1952.
- Wahler, H. J. A comparison of reproduction errors made by brain-damaged and control patients on a memory-for-designs test. *J. abnormal, soc. Psychol.*, 1956, 52, 251-255.
- Wechsler, D. *Wechsler Intelligence Scale for Children Manual*. New York: Psychological Corporation, 1949.
- Wechsler, D. *The Measurement and Appraisal of Adult Intelligence*. Baltimore: Williams and Wilkins Co., 1958.
- Wechsler, I. S. *A Textbook of Clinical Neurology*. 7th ed. Philadelphia: W. B. Saunders Co., 1952.
- Weinstein, S., & Teuber, H. L. Effects of penetrating brain injury on intelligence test scores. *Science*, 1957, 125, 1036-1037.
- Welsh, G. S., & Dahlstrom, W. G. *Basic Readings on the MMPI in Psychology and Medicine*. Minneapolis: Univ. of Minnesota Press, 1956.
- Wheeler, E. Y. A study of certain aspects of personality as related to the electroencephalogram. *Trans. Amer. Neurol. Assoc.*, 1946, 71, 173.
- Williams, H. L. The development of a causality scale for the MMPI. *J. clin. Psychol.*, 1952, 8, 293-297.
- Williams, M., & Pennybacker, J. Memory disturbances in third ventricle tumors. *J. Neurol. Neurosurg. Psychiat.*, 1954, 17, 115-122.
- Wittenborn, J. R. The behavioral symptoms for certain organic psychoses. *J. consult. Psychol.*, 1952, 16, 104-106.
- Wittenborn, J. R., & Holzberg, J. D. The Wechsler-Bellevue & Descriptive diagnosis. *J. consult. Psychol.*, 1951, 15, 325-329.
- Wrightstone, J. W. *A supplementary guide for scoring the Revised Stanford-Binet Intelligence Scale (form I)*. New York: Board of Education, 1941.
- Yacorzynski, G. K., Boshes, B., & Davis, L. Psychological changes produced by frontal lobotomy. The frontal lobes. *Res. Publ. Ass. Ner. Ment. Dis.*, 1948, 27, 642-657.
- Yates, A. The validity of some psychological tests of brain damage. *Psychol. Bull.*, 1954, 51, 359-380.
- Young, C. W. The possible use of the memory span for indication of complexes. *J. abnorm. soc. Psychol.*, 1941, 36, 115.
- Young, F., & Pitts, V. The performance of congenital syphilitics on the Wechsler In-

telligence Scale for children. *J. consult. Psychol.*, 1951, 15, 239-252.

Zangwill, O. L. *Cerebral Dominance and its Relation to Psychological Function*. Springfield, Ill.: C. W. Thomas, 1960.

Zangwill, O. L. Observations on the Rorschach Test in two cases of acute concussion

head injury. *J. ment. Sci.*, 1945, 91, 322-336.

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Received November 2, 1965

Revision received February 18, 1966

Personality Testing of the Handicapped: A Review¹

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Summary: The validity and utility of various projective and non-projective tests with handicapped populations were reviewed. Five areas of handicapping conditions were considered: Blindness, Deafness, Speech Disorders, Motor Disorders, and Intellectual Retardation. The utility of varied tests for personality diagnosis in these areas was indicated, either through evaluation of research on these tests and the handicapping condition or through noting certain unique features of specific tests which may be of help in diagnosis, though no research has yet appeared. A summary at the end of each handicapping condition indicates which tests seemed most promising for diagnosis.

"The growing emphasis upon the rehabilitation and training of the handicapped has created an increasing demand for appropriate testing instruments." (Anastasi, 1954, p. 268.) While much of the demand has been for new intelligence tests, successful adaptation to society is often as much a function of personality variables as of intellectual ability. For this reason, it would seem important to assess not only the intelligence of the handicapped person, but his personality structure as well. It is the purpose of this paper to present an overview of the field of personality testing with the handicapped individuals as it exists at this time. The emphasis will be on the tests themselves and their validity and usefulness with the handicapped person rather than upon the results of the tests. Five major areas of handicapping conditions will be considered: (a) The blind; (b) the deaf; (c) the speech impaired; (d) the crippled and motor impaired; (e) the mentally retarded. Under each area, two types of tests, projective and non-projective, will be considered. In de-

termining what tests to consider, the following criteria were established.

(a) The use of the test with the handicapped person has been reported in the literature, and the test, by virtue of its design, would seem to have some special utility with the handicapped though no research may have been done; (b) the test is generally available; (c) the test is primarily a personality test. Under these criteria tests developed mainly as research instruments have been omitted. The author has also taken the liberty of assuming that this paper will be read by individuals with some knowledge and sophistication in the field of testing. For this reason, unless a test is new or rare, a description of the test and testing procedure will not be provided.

I. The Blind

Almost more than any other area, the blind are extremely handicapped as regards personality testing since most existing tests, especially projective measures, depend upon visual stimuli to some extent (Donahue & Dabelstein, 1947). For this reason, the personality evaluation of the blind has been a difficult and quite neglected area. Recently however, an excellent review (Lebo and Bruce, 1960) on the use of projective techniques with the blind has appeared. This review covers many unpublished tests in depth. Unlike the Lebo and Bruce (1960) review, however, the present review will touch only on

¹The author gratefully acknowledges the help of Miss Pat Mundy and Dr. H. Carl Haywood and Dr. Susan Warren for their reading and critique of this paper. Special acknowledgement is due to Virginia Dobbs for her catalytic action in getting this paper reproduced.

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available tests. Readers wishing to go more into depth on this subject should consult the Lebo and Bruce (1960) review.

A. "Objective" Tests:

1. **Personality Inventories:** A review of the literature has revealed only two studies using personality inventories with the blind. The authors (Greenberg, Allison, Tewell & Rich, 1957; Greenberg & Jordan, 1957) gave the Bernreuter Inventory and the California F. Scale to over 100 students in a residential school for the blind. The scales were administered verbally, and the students wrote or typed their answers. The authors report strong neurotic trends in the students studied with no differences between blind and partially seeing person. Unfortunately, they do not report any data showing whether there are any effects occurring due to their modification of the testing procedure. Until this is done, and their rather deviant results verified, the use of the Bernreuter and California F. Scale would not be recommended for the blind.

2. **IPAT Music Preference Test of Personality:** This is a test which, though eminently suited for use with the blind, has had no research with this population. The test consists of ten recorded musical selections. The subject listens to the music and his reactions are then evaluated over 11 areas, including emotionality, anxiety, stability, etc. Reviews of the test (Buros, 1959) show few norms and poor reliability (.54 after 24 hours.) This test, while an interesting approach, does not now seem ready for use as a clinical instrument with the blind.

3. **MMPI:** Considering the great amount of use the MMPI has enjoyed, an attempt to modify it for use with the blind would seem a natural step. This step was first taken by Cross (1947), who translated the MMPI items into braille and placed each item on an individual card.

After reading the question, the subject would place the card into a "true," "false," or "cannot say" pile. Cross attempted to validate his modification on 50 blind individuals drawn from state and public schools. Analysis showed that the blind differed from sighted norms on only 20 items out of the original 550. Most of these differences were caused by increased depression among his male subjects.

A different technique of modification was attempted by Potter (1947), who dropped 193 items from the test and recorded the remainder. In his technique, the blind individual listens to the question, then puts the numbered card into the appropriate pile. The author claimed good results with this technique, but offered no data to support this claim. Some support for this method has come from a study by Bonk (1955), who found that this technique differentiated between different occupational groups of the blind on MMPI profiles. A somewhat different technique, however, has produced contrary results. Dean (1957) used 54 blind adults who were rated on various measures of adjustment, self-concept, acceptance of handicap, and other similar measures by a number of judges experienced in working with the blind. The reliability of these ratings across judges was found to be .91. Dean then administered a battery of tests among which was the MMPI. Using a verbal administration of the MMPI, Dean found no relation between MMPI scores and judges' ratings. He did, however, find normal MMPI profiles for the blind, thus substantiating Cross's (1947) results. In spite of his finding of no relation between measures, Dean concluded that the MMPI is probably applicable for the blind without substantial modification.

The MMPI has also been given to the blind by Hibbeler (1947), but no validity or reliability data were reported.

4. *Rating Scales*: It would seem that one especially fruitful area for personality diagnosis of the blind would be standardized personality ratings by such workers in the field as teachers. In this area two especially promising instruments have appeared. The first, the Personal and Social Development Program, is applicable for children up to the ninth grade level. The teacher records the child's behavior in eight areas including personal adjustment, creativity, social adjustment, and sensitivity to others. The second instrument, the Rating Scale for Pupil Adjustment, is applicable for grades three to nine. In this scale the teacher rates the child in 11 areas of personality including overall adjustment, social maturity, depression, and aggression. There is a place in this scale for special handicaps to be taken into account. A reliability of .84 (Test-Retest over one month) has been found with this instrument. Though no research has appeared using these scales with the blind, both seem quite promising as evaluative instruments. Reviews (Buros, 1959) of these scales have been quite favorable with the second instrument considered the more sophisticated at this time.

5. *The Vineland*: While the Vineland cannot be considered a true personality test, it does measure one aspect of personality, and the research on it has been fairly extensive. For these reasons it seemed important to include the Vineland. The first report of use of the Vineland with the blind came in a study by McKay (1936). Using individual case analysis of the records of blind children, McKay indicated that some items unduly discriminated against young, blind children. Among those items she considered as discriminative were: "reaches for familiar persons," "eats with a spoon," "uses pencil and crayon for drawing," "prints simple words," and "goes to school unattended." Her conclusions were echoed by Bradway (1937a), who found a deficit of 38% in the scores of blind children, and

Maxfield (1942), who also found undue discrimination against the blind through she did indicate that the test was quite valuable. Feeling that there was a need for new items having smaller steps, Maxfield revised the first 77 items of the Vineland. Her version contained 21 original Vineland items, 31 revised Vineland items, and 36 new items; it is most applicable for use with preschool blind children.

B. Projective Tests:

1. *The Auditory Apperception Test (AAT)*: This test, applicable to grades nine and above, consists of five records containing ten sets of three sound situations. After listening to each set, the subject is asked to make up a story using the three sounds. A Thematic Apperception Test (TAT) inquiry and scoring is used. Although this test would seem to be perfect for the blind, no research has been found using the AAT with the blind. Reviews (Buros, 1959) indicate that more validation and a better scoring method is needed before this test can be put into general use. A test, similar to the AAT is the Sound Test. As described by Palacios (1959) this is an auditory projective technique having 15 sound segments involving mechanical sounds and human situations. Scoring is based on thoughts expressed, parts of sound responded to and integration of sounds. When given to three samples of blind adults, one group working in industry, another group working in a sheltered workshop, and a third group unemployed, it was found that the members of these three groups could be distinguished by their responses to the Sound Test. A key measure was the individual's ability to integrate and organize sounds, and to deal with the whole sound segment.

2. *Verbal TAT*. Closer perhaps to the classic TAT is the suggestion of Lebo and Harrigan (1957) to use a verbal TAT with the blind. The verbal TAT is given by reading the descriptions of the TAT cards found

in the TAT manual to the subject. Although not yet given to the blind, Lebo and Harrigan (1957) compared responses elicited by a verbal TAT with responses obtained by regular TAT procedure. Subjects were 32 female college students. Procedural comparisons were made on number of words elicited, number of ideas elicited, and a rating of mood and level of story response. Results showed no differences between verbal and regular TAT procedures on any measures except level of responses and on this measure scores favored the verbal TAT procedure.

3. **Graphomotor Projection Technique:** The first part of this test would seem quite applicable to the blind since sighted subjects must be blindfolded during this section. The subject is then given pencil and paper and asked to move his pencil freely on the paper for five minutes. The process is then repeated. Then, still deprived of vision the subject is asked what he thinks he wrote or drew and what his thoughts were while working. While the graphomotor technique would seem quite useful with the blind, its utility is hampered by two factors: (a) There has been no research done with this test using the blind; (b) most reviews (Buros, 1959; Phillipson, 1955) agree that at this stage of development there is no way to interpret the test results.

4. **Sentence Completion Blanks:** One of the more well-known clinical tools for personality evaluation is that of the sentence completion test. The verbal administration of sentence stems to the blind would seem an obvious modification of this test; however, only two studies were found using this technique. In an early study, Brieland (1950) gave a 30-stem blank in either large print or Braille to 250 children enrolled in special classes for the blind or visually limited. The stems attempted to tap social and home adjustment and family attitudes. Subjects wrote their associa-

tions to the stems. Brieland indicated that this sort of test is easily administered and scored though little detail is given on administration and scoring. Then there is the previously reported study by Dean (1957) using 54 blind adults, rated on various measures of adjustment and then given a battery of personality tests, one of which was the Rotter Incomplete Sentences Blank (ISB). Subjects' answers were scored on the seven-point adjustment scale found in the ISB manual (Rotter & Rafferty, 1950). Results showed no relation between ISB scores and adjustment ratings. The reviewer feels, however, that this was an unfair comparison since the ISB scoring system is more a measure of psychopathology than personal-social adjustment. In this feeling he is supported by Dean, who concluded that a qualitative, thematic scoring of the ISB would be useful with the blind.

5. **The Insight Test (IT):** This test is one of the few projective tests done with a handicapped population in mind. The test consists of fictional characters who are put in conflict situations. The subject can either read or have the conflict situations read to him. The subject is then asked what the character did, why he took these actions, and how he felt in the conflict situation. Pilot research (Sargent, 1956) showed no differences as a result of written vs. verbal presentation of material. Research with this test has been done by Dean (1957) and Sargent (1956). Dean, in a study previously reported on, found no relationship between IT scores and judges' adjustment ratings. His conclusion was that this test should be used with the blind only with great caution. Sargent gave the IT to 27 blind patients at the Kansas Rehabilitation Center and compared IT scores with adjustment ratings made by the staff of the center. Her results showed that overall IT scores and one subtest score correlated with the adjustment ratings. In view of these conflicting

results between Sargent and Dean, and keeping in mind that it was Sargent who devised the IT, the reviewer feels that a cautious use of the IT with the blind is permissible until further research appears to answer the question of its utility with the blind.

6. **Twitcheil-Allen Three Dimensional Personality Test:** This test, used for ages three and over, consists of 28 ambiguous plastic figures. The subject can either choose forms and make up a story about them, or name the forms and tell why he named them thusly. The first method is scored on TAT criteria, the second on Rorschach criteria. Since the subject is not permitted to see but can only feel the forms, this test seems quite applicable for the blind. The only reported research with this test comes from a study by McAndrews (1950) who gave the Twitcheil-Allen to blind individuals. McAndrew reports successful use of this test, though her criterion for success is not spelled out. This test would also seem to require some normative data before being put into clinical use (Buros, 1959).

Summary: In personality testing of the blind, it would appear that the major instrument at this time would be one of the adaptations of the MMPI that were reported on. Both in terms of research and validity, this test would seem to be most applicable with the blind. With the exception of the various teacher rating scales, which are still in the developmental stage, there would seem to be no other applicable non-projective test for the blind. In terms of projective techniques, while there are several promising measures as the AAT, Sound Test and Verbal TAT, at this time there is no one major test upon which the clinician can rely. Best results would probably come from a battery consisting of the Rotter ISB, Insight Test, and the MMPI.

II. THE DEAF

In testing the deaf, the problem is

two-fold. Not only is there the problem of severe hearing loss, but the deaf characteristically also have a deficit in linguistic development, both verbal and written (Anastasi, 1954). Thus, with the deaf there is a problem both in communicating directions and questions and in the obtaining of answers.

A. "Objective" Tests:

1. **Personality Inventories:** With the exception of the work of Pintner and Brunschweig (1937) the author was unable to find any specific work done on personality inventories with the deaf. However, both Pintner and Brunschweig have developed personality inventories. The former devised a 64-item scale standardized on 770 deaf boys and 560 deaf girls. The inventory measures general, social, school, and home adjustment. There are no reliability or validity data with this scale. The Brunschweig Adjustment Inventory (Brunschweig, 1942) has been used more widely, but there are also few data available on it.

2. **Pictorial Study of Values-Pictorial Allport-Vernon:** An interesting test which may show some promise with the deaf is the Pictorial Study of Values. This test is nothing more than the Allport-Vernon-Lindsey scale transformed into pictures. The subject checks on a five-point scale how much he likes or dislikes each picture. Because of the lowered amount of reading involved the test probably could be used with older deaf children and adults, although no application of the scale to the deaf has been made. The scale has construct validity and some normative data but in general reviews have been mixed (Buros, 1959).

B. Projective Tests:

1. **Drawing Tests:** In terms of ease of administration, any figure drawing test would seem applicable to the deaf. In reviewing the various drawing tests, the author felt that in terms of ease of administration and validity the Machover Technique would be most useful with the deaf (Buros,

1953). The one study utilizing this technique was done by Neyhus (1963) who gave 80 adult deaf, above average in intelligence and SES for a deaf population, the Rorschach, MAPS, Rotter and Human Figure drawing. Directions were by signs, gestures and writing. Neyhus (1963) reports valid results with these instruments, though he cautions that, for the deaf, there is more difficulty in handling highly unstructured situations.

2. **Make a Picture Story Test (MAPS):** The MAPS is one of the major modifications of thematic projective techniques. Bindon (1957a) has stated that this test procedure can be modified to compensate for the language difficulties of the deaf, especially if a trained worker administers the MAPS. Bindon's major modification has been to ignore the inquiry and score by formal signs only. Using this procedure she tested 36 rubella deaf children, 15 non-rubella deaf children, and 30 normal children. All matched on CA, sex, and educational background. She found no differences between the deaf groups, but these groups had fewer normal signs than her normal controls. Bindon, however, offers no data on the validity of her scoring system. Neyhus (1963) in a previously discussed study has also reported good success using the MAPS. He does caution, however, that there is a low but significant positive correlation between language level and scores on certain tests, including the MAPS. This seems to indicate that the clinician should, perhaps, take into account the linguistic abilities of his deaf clients when interpreting test scores.

3. **Rorschach.** The most well known and widely used projective test has undoubtedly been the Rorschach. While the full Rorschach technique is obviously not useable with deaf children, some attempts have been made to modify the test for use with the deaf. Bindon (1957b), using Munroe Inspection Technique (Munroe, 1959) as the method of scoring, gave

the Rorschach to 51 deaf and 30 hearing children matched on sex, education, CA, and Socio-Economic-Status (SES). The Munroe technique consists basically in holding the inquiry after each card and asking only for location data, thus reducing the amount of language needed. Bindon found an emphasis on form responses with much human and animal detail. She also noted that the deaf often held the cards in abnormal ways. Neyhus (1963) has also reported some success using the Rorschach with the deaf, though the ambiguity of these stimuli do make the task difficult for some of his deaf subjects. Altable (1947) has given the Rorschach to 45 congenital deaf-mutes. Instructions and responses were communicated through a trained teacher of the deaf by means of sign language. Altable found constriction, poor impulse control, and a high rejection of the cards among these individuals.

4. **Rosenszweig Picture Frustration Test (PFT):** Considering the amount of frustration the deaf must encounter, some estimate of their reaction to frustration would be extremely valuable. Using drawings of frustrating situations, the PFT provides a number of measures showing an individual's reaction to frustration. Kahn (1957), in a very well-designed study, gave the PFT to 30 children with varying degrees of deafness. Following this administration, each child was given the block design frustration technique, which requires the subject to reproduce 35 designs of which only 25 are reproducible. Comparisons of reactions in this frustrating situation with PFT scores showed some differences; however, these would be expected considering the more ego involved aspects of the block test. It was Kahn's conclusion that his study showed the validity of the Rosenszweig as a predictor of the reactions of deaf children to frustration.

5. **Sentence Completion Test:** Neyhus (1963), in a previously discussed study, also reports using the Rotter

ISB with deaf adults. He reports good results with this test though, as stated previously, the correlation between language level and scores on the Rotter do add difficulties to the interpretation of this test.

Summary: With the exception of the Vineland and the teacher rating scales, there appears to be no non-projective technique which would be especially useful with the deaf. Studies with the Rorschach indicate that it may have some utility with the deaf if an examiner trained in sign language helps administer the test. The most valuable test at this time, both in terms of administration ease and validity, would seem to be the Rosenszweig PFT. For literate deaf adults, the Rotter ISB might also be quite valuable.

III. THE SPEECH HANDICAPPED

Unlike the blind and deaf, who have a problem in both reception and communication, the speech impaired individual's primary problem is in communication. It would then be logical to assume that the speech impaired individual would have less difficulty in taking non-projective tests, which usually require only written answers. It is perhaps for this reason that the non-projective research with the speech impaired has been so scanty.

A. "Objective" Tests:

1. *Personality Inventories:* From the nature of the handicap involved, it would seem that most personality inventories would be applicable for the speech handicapped individual without modification. The literature reveals only two reports illustrating the use of a personality inventory with speech impaired persons. First is a study by Richardson (1944), who used the Guilford STDCR Inventory with 38 adult stutterers matched with normal controls. She reports greater social introversion and greater depression in the stuttering group. While an interesting report, this study would

have been more informative if Richardson had broken her group down into levels of severity of stuttering. A later study was that of Sergeant (1963) who gave Bell's Adjustment Inventory and the Bernreuter Personality Inventory to 210 subjects suffering from various vocal defects, as well as to a normal control group. His results showed that his speech disordered subjects showed greater variability in scales measuring anxiety, emotionality, and health adjustment. Sergeant's results also indicated that speech handicapped adults react differently to items relating to talking than do normal adults. This may be due, not to personality differences but, for the speech handicapped adults, actual reality.

2. *MMPI:* Walnut (1954) compared a group of stutterers with a cleft palate group on the MMPI. She found both groups well within the normal range of personality as defined by MMPI profiles. Looking over the profiles, Walnut made the observation that the stutterers did show an abnormal reaction to verbal situations.

3. *Rating Scales:* The Rating Scale for Pupil Adjustment and the Personal and Social Development Program, both previously reported upon, can also be applied to speech impaired children, though no research was found with this population.

B. Projective Tests:

1. *Family Relations Test (FRT):* A seemingly ideal test for the speech impaired child would be the FRT which measures the child's feelings toward members of his family and his perceptions of their feelings toward him. These measures are taken without any verbal responses being needed. No research has been done testing speech impaired children on the FRT, though the reviews (Buros, 1959) have been favorable toward the FRT.

2. *Drawing Tests:* The Machover DAP, previously reported upon, would also seem valid for the speech im-

paired individual, though no research has been reported.

3. Rorschach: While a verbal test like the Rorschach would not seem to be the most useful type of measure for the speech impaired individual, some research has been reported using this test. Krugman (1946) matched 50 stutterers with 50 problem children on sex, CA, and IQ. He found that the stutterers gave fewer responses, had a higher rate of refusal, saw more whole percepts, and had a higher percentage of stereotyped content. Richardson (1944), using adult stutterers matched with normals, showed fewer movement and color responses in the stuttering group. Meltzer (1944) has reported a number of differences on Rorschach performance between stutterers and normals and has stated that these differences are internally consistent. In none of these studies is there any report of modification of the Rorschach technique or of difficulty in giving the test, so it would seem that the Rorschach can be used with stutterers.

4. Rotter ISB: Although there has been no research using the ISB with the speech impaired individual, the non-verbal nature of the answers would seem to make this test quite useful in this area of handicapped conditions.

5. Rosenszweig PFT: Like the ISB, the Rosenszweig PFT requires only written answers. Madison and Norman (1952) have given the PFT to 25 stutterers: 13 high school students, 7 college students, and 5 adults. As compared with the Rosenszweig norms, Madison and Norman found stutterers more intropunitive, less extrapunitive, lower in obstacle dominance, and higher in need persistence. These deviations from the norm, however, may be due to the CA of the subjects involved — a hypothesis that has been put forward by Quarrington (1953). Using 30 stutterers closely matched with the PFT normative group, Quarrington found no differences in PFT performance between

his group and the test norms. From the reviewer's experience with the Rosenszweig, Quarrington's study would seem to be the more correct, especially since Madison and Norman used the adult form of the PFT with their high school students. Thus, in giving the Rosenszweig to stutterers the examiner should look upon differences as a representation of the individual's reaction to frustration and not as an artifact due to his stuttering.

6. TAT: Strange as it may seem, the TAT, which depends entirely upon verbal production, has been given to a group of stutterers. Richardson (1944), in a previously reported study, gave the TAT to a group of 30 adult stutterers. From her results it would appear that adequate thematic material was produced without any need for modification in technique. While this seems to indicate that the TAT can be used with stutterers, the reviewer feels that a further study using the TAT with different levels of speech impairment is needed before the general clinical use of this test with the speech impaired individual can be recommended.

Summary: Considering the nature of speech impairment, it would seem that most non-projective tests can be given to the speech handicapped person without modification. Some care should be taken, however, in scoring items that refer to verbal situations. While it would also seem the most projective tests can be given without modification, the reviewer feels that some of the more non-verbal projective tests, such as the Family Relations Test, DAP, ISB, and Rosenszweig, should be given first consideration.

IV. CRIPPLED AND MOTOR IMPAIRED

Rather than use separate subsections for the various categories of motor impairment, the reviewer has taken the liberty of considering these diverse groups as one, having the common problem of an inability to com-

municate either orally or in writing (Anastasi, 1954).

A. "Objective" Tests:

1. Personality Inventories: Seidenfeld (1947) has given the California test of personality to 110 polio stricken school children, half of whom had residual paralysis. He states that his results show personality patterns relating to the illness, but offers little data to support this conclusion. There was no indication of how the author gave the test or what modifications were used.

2. MMPI: Linde and Patterson (1958) have given the MMPI to 33 cerebral palsied adults, 20 of whom had speech defects and 20 of whom were also in wheel chairs. Their results showed the CP individuals significantly higher on all MMPI scales in comparison with the norms. However, the authors go on to state that, except for the Sc and Ma scales, the actual differences involved are quite small. A rather interesting finding occurred when the authors performed an item analysis. Their results showed that the CPs were being penalized on some items for answering in terms of reality. An example is the item, "I have never been paralyzed or had any unusual weakness in the muscles," in which a reality based answer of "false" for a cerebral palsied individual is scored in the abnormal direction. This suggests caution in using the MMPI with crippled individuals.

3. Rating Scales: The Rating Scale for Pupil Adjustment and the Personal and Social Development Program, both previously reported on, would again seem to be valid for use with crippled children, though no research has been done.

B. Projective Tests:

1. Childrens' Apperception Test (CAT): The CAT is a revision of the TAT aimed at children; however, unlike the TAT, the Childrens' Apperception Test uses animal figures. Holden (1956) has administered the CAT to eight cerebral palsied chil-

dren, ranging in ages from five to twelve. These children were matched with ten normal children on MA. Holden's results showed the CP children giving descriptions to 61% of the cards as opposed to only 28% for the normal children. This very high percentage of descriptions indicates that the CAT has only limited utility as a projective test for the cerebral palsied child.

2. House-Tree-Person Test (HTP): In taking the HTP, the subject is asked to draw a house, tree, and a person. The examiner then may or may not ask the subject questions about his drawings (Buck, 1948); the use of these questions is left up to the examiner's judgment. Wawrsaszek, Johnson & Schera (1958) administered the HTP to 41 severely orthopedically handicapped children, matched on CA, sex, and IQ with normal children. The extensive post-questioning was shortened to those questions which were thought to be most valuable in eliciting dynamic material from the handicapped — these being questions P6, T3, T4, T5b, T9, T10, T12, H8, T19, and T21, all obtained from the HTP manual (Buck, 1948). Results showed no differences in types of answers to these questions between the handicapped and normal children. The insensitivity of these questions plus a lack of information on administration procedure of the HTP to orthopedically handicapped children makes the use of this test with the crippled doubtful at this time.

3. Level of Aspiration Test (LOA): The original Level of Aspiration test was devised by Rotter to measure the achievement goals a person will set for himself and the degree to which he will modify these goals. In the original test the subject attempted to stroke a metal ball up a numbered wooden plane with a cue stick. Wenar (1953), taking into account the limitations of the handicapped individual, modified this test. His technique consisted of rate of placing pegs in a peg-board with the examiner asking the

child to estimate how many pegs he can put in the board each trial. Wenar gave this test to 12 normal children, 12 mildly impaired cerebral palsied children, and 12 severely impaired cerebral palsied children. His findings showed no differences between groups on original goals, but there were trend differences shown as the trials progressed. While this modification is an interesting development, it is unfortunate that Wenar did not subject his modification to a preliminary comparison with the original LOA board to see if both were measuring the same factor.

4. Rorschach: While there have been a few studies using the Rorschach with the crippled (Sarason & Sarason, 1947; Kimmel, 1959), only one study (Wenar, 1958) seems to provide any data for estimating the utility of this test with the motor handicapped. Wenar gave the Rorschach to 30 adolescents referred for both personality problems and motor handicaps, and 20 more adolescents referred for personality problems only. Results showed no differences between groups on clinical pathology signs. This seems to indicate that the presence of motor handicap will not affect Rorschach performance to the extent of masking personality variables.

5. Pictorial Apperception Tests: In an attempt to stimulate greater productivity, Bachrach and Thompson modified the TAT for use with motor handicapped individuals. (Greenbaum, Quatere, Carruth, and Cruckshank, 1953). Their version had 23 cards, 14 of which were new, 2 of which were modified TAT cards, and 7 of which were from the TAT. Their modification showed handicapped rather than normal individuals and was based on the rationale that a picture of a motor handicapped individual should produce greater identification and thereby stimulate productivity. This modification was tested by Greenbaum, *et al.* (1953), who used two matched groups of orthopedically

handicapped children. The first group received three TAT cards, the second group three comparable modified cards. Results were contrary to Bachrach and Thompson's hypothesis, as the original TAT cards produced greater productivity than the modified version. An analysis of stories indicated that the modified cards produced stories mainly concerned with the denial of a handicap. This study should, however, be considered only exploratory, since only three of the modified cards were used.

Another version of a pictorial apperception test is the Symonds Picture Test. Broida, Izard, and Cruckshank (1950), feeling that this test was more applicable with adolescents, gave 10 of the 20 cards to 30 crippled children. Part of their results confirmed Greenbaum's (Greenbaum, *et al.*, 1953) work as Broida and his colleagues found a striking lack of themes about physical disabilities. The results further showed that the Symonds cards produced a large number of scorable themes, which led the authors to conclude that the Symonds test is quite applicable for crippled children.

6. The World Test: The World Test consists of some 200 small toys representing houses, trees, animals, people, etc. The subject is presented with this material and told to construct what he wishes with them. The subject's choice of materials, and quantity used, what is built, and the form of the construction are scored on various measures. This test is considered to be one of the more promising in the clinician's arsenal (Anderson & Anderson, 1951). A series of interesting studies using the World Test with the motor handicapped individual has been done by Wenar (1954; 1956). From his experiences Wenar found that with slight modifications the test could be handled by all but the most severely handicapped persons. Modifications included mounting the animals and fences on cardboard and putting the human figures on weights to make them more

stable. In the case of extremely handicapped children, the examiner could offer to place the pieces for the child. The only major scoring modification was the elimination of scoring for a number of objects since Wenar found that this was discriminating against the handicapped child. In his two studies comparing normals with mildly and severely crippled children, Wenar found no typical handicapped profile and, with one exception, no major personality differences. The only difference found indicated a weakening of ego defenses among the handicapped children. Wenar's work seems to indicate a promising future for this test in the evaluation of motor handicapped individuals.

Summary: As of now, there appears to be no satisfactory non-projective technique that can be used with the motor handicapped person, other than the personality rating scales which are still in the developmental stage. In the area of projective testing, however, the picture is somewhat brighter. Wenar's work with both the Level of Aspiration technique and the World Test indicates a promising future for these tests. The World Test seems especially promising in working with the handicapped person. While the Rorschach may have some utility, the most valuable clinical tools at this time seem to be either the standard TAT or the Symonds Picture Test.

V. THE MENTALLY RETARDED

It has been generally concluded (Gallagher, 1959) that the measurement of personality development in the retarded has lagged behind the measurement of intelligence and social behavior. The major problem in this area seems to be two-fold; first, the retardates' lowered intellectual capacities often causes either an inability to comprehend testing procedures or empty and diffuse test records (Halpern, 1960); secondly, retardates often lack sufficient self-perception or verbal aptitude to re-

port their own feelings (Gallagher, 1959).

A. "Objective" Tests:

1. *Personality Inventories:* Martin (1941) gave 374 graduating M. R.s the elementary series of the California Test of Personality. His findings showed scores consistently five points below the norms for retardates. Martin offers no data, however, to show that his subjects really comprehended the test. He offers as validity data teachers' statements that the tests showed accurate pictures of the children.

2. *Pictorial Study of Values:* This previously reported upon test, because of its de-emphasis upon reading questions, would seem to be applicable with higher grade EMR's, though no research has been reported with this population.

3. *Rating Scales:* The previously described Rating Scale for Pupil Adjustment and the Personal and Social Development Program would also seem to be applicable to retarded pupils.

4. *The Vineland:* Since the Vineland was originally designed for the retarded, its applicability to this group is quite clear. There are numerous references reporting the use of the Vineland with the retarded (Doll, 1953), and the use of this test with this population would be a review in itself. For this reason no review of research will be attempted here since it is beyond the scope of this paper.

B. Projective Tests:

1. *Children's Apperception Test:* In an attempt to determine the utility of the CAT with the retarded, Butler (1961) administered 6 CAT cards and 6 identical cards with human figures in place of the animal figures to a random sample of 50 institutionalized retardates. The retardates were given one set of pictures and then the other set three weeks later, with order of presentation counterbalanced. Results showed no differences in productivity on either set of cards, with most re-

tardate responses being little more than a description of the card. In a later study using young, retarded, grade-school children, Budoff (1963) presented either nine CAT cards or nine modifications of these cards using the same theme but with human figures. Children were given one of the sets first and the other two weeks later. Appropriate counterbalancing procedures were used and analyzed for. Results showed significantly longer stories being told with the human figure cards than with the standard TAT cards, though about 1/3 of all stories were descriptive. Budoff also noted, however, that cards showing figures relating to each other around an overtly pictured common focus of activity got the most scorable responses from his population. In spite of this indicator of what type of cards have the most pulling power, both studies reported here show little reason to substitute the CAT for the TAT in working with the retarded.

2. **Drawing Tests:** Satter and McGee (1954) have given the Bender Gestalt Test and the House-Tree-Person Test to 81 retardates who were judged as not achieving up to their potential and 111 retardates who were judged as having achieved up to their potential. Analysis of drawing productions showed that the achieving retardates were more accurate and took greater care on both the HTP and Bender. While this study may indicate the validity of these instruments for use with retardates, it does not show that these instruments have predictive validity since the studies were retrospective. Nor does the analysis of these instruments in terms of care and neatness shed any light on the personality variables causing achievement or non-achievement.

3. **The Family Relations Test:** The Family Relations Test, especially the version for younger children, could probably be given to higher grade retardates, though no such effort has yet been made.

4. **Mosaic Tests:** The Mosaic test

consists of a large number of differently colored and shaped plastic pieces. These are given to the subject who is then asked to arrange them in any way he wishes. This test has the advantage of being fairly language free and is not affected by manipulative skills. For these reasons Mosaic Tests have found some use with the retarded as a personality diagnostic instrument. Shotwell and Lawrence (1951) have given the 456-piece Lowenfeld Mosaic Test to 30 familial and 22 brain-injured retardates. Analysis of the designs indicated that brain-injured retardates had a lack of foresight and had higher goals, yet failed more, often leaving half-finished or spoiled designs. The authors concluded that these differences reflected difficulties in binding tension, testing reality, and understanding their handicap in the brain-injured retardates. While there is no reliability or validity data, the authors' descriptions indicate fairly consistent results for the different groups. However, the use of the Lowenfeld test with retardates has also been questioned in a study by McCulloch and Girdner (1949). After characterizing the commonly found patterns made by defectives — simple forms, dual units, and small and compact designs — the authors reported the results of their giving the Lowenfeld to 200 retardates and 100 normals matched on CA. Besides finding a significant correlation between type of mosaic pattern and MA (.43), the authors reported that their analysis showed a consistency in the retardates' mosaic patterns (many colors but poorly harmonized, many concrete patterns) through all MA levels. This led the authors to conclude that, in terms of understanding personality dynamics, the use of normal scoring patterns as criteria may not be valid for retardates. One way of resolving this dilemma may be found in a study by Carr (1958), who simplified the Lowenfeld Test to 216 pieces. It is unfortunate that Carr then concentrated on finding differences between

familial and brain-injured retardates rather than exploring the validity of his downward revision of the Lowenfeld as a personality instrument for retardates. Considering the discrepancy in results between the two studies using the regular Lowenfeld Mosaic Test and the lack of data on the Carr revision, it would seem that more research is needed before the Mosaic test can be fully utilized with retardates.

5. The Rorschach: It would seem that the use of the Rorschach with retardates has been almost as extensive as the use of the Binet. A review of the early literature on use of the Rorschach with retardates is found in a review by Kelley and Barrera (1941). In summarizing these earlier findings Kelley and Barrera conclude that the retardate typically has a Rorschach protocol showing poor form quality, much color, few introspective or whole responses, and a high number of animal responses. Unfortunately, the literature exploring the validity of making interpretations from retardate protocols has been far less than the literature on the types of retardate protocols found. Surprisingly, however, there are some validity studies using the Rorschach with retardates; these may be divided into two types, the first being research validity, the second being clinical validity. One of the earliest research validity studies was that done by Abel (1945) using 15 pairs of retardates matched on everything but educational progress. These retardates were then given the Rorschach, and their responses were analyzed. Results showed that the good progress retardates showed more integrative responses, had greater feelings of environmental control, had better indicators of good interpersonal relations, and had a greater awareness of reality as manifested by their Rorschach responses. The poor progress group showed signs indicative of greater withdrawal, had more confused perceptions, and had less feelings of control

over the environment. Again, however, this is a retroactive study rather than a predictive one. Further evidence of the validity of Rorschach signs with retardates has come from a study by Fujimoto (1962), who showed that the Rorschach could be used to differentiate between retardates judged as well-adjusted and those judged as poorly adjusted. However, conflicting results have come from a study by Sloan (1948), who attempted to use certain Rorschach signs to predict success in community placement. Contrary to predictions, however, those successful on placement had fewer good prognosis signs than those regarded as failures. Unwilling to accept these results as final, Sloan then went back over the entire protocol. Doing this he found some evidence for the utility of the Rorschach when he reported that those successful on placement seemed to be able to recover faster from strong emotional states, as indicated by recovery from color shock on the Rorschach. These three studies do offer some research validity for the Rorschach, but they also indicate that much more research evidence is needed before full confidence should be placed in the Rorschach as a diagnostic tool with retardates. Contrary evidence, however, has come from a study by Ogdon and Allee (1959) who attempted to determine the relation of Rorschach signs to intelligence. The authors studied the Rorschach protocols of 20 mildly retarded and 20 moderately and severely retarded individuals, all matched on age, sex, and race. Subjects had first been tested with the Rorschach and then with the schach was scored blindly by two Weschler-Bellevue, Form II. The Ror-experienced clinicians with good interscorer reliability. Product-moment correlations between Rorschach signs and Weschler scores were then computed. While there may be some criticisms concerning the use of the Weschler with moderate and severely retarded individuals, the correlational

results do seem quite clear-cut. Results showed significant positive correlations between IQ scores and form level, F, FM, W, and FC and CF form level indicating that as IQ decreases, ability to perceive with clarity also decreases. Number of P, variety of content, Fc, and cF were also significantly, positively correlated with IQ. There was no significant correlation between IQ and number of FC and number of M. The latter finding may be due to the low number of M produced. These results seem to indicate that, as far as use of the Rorschach with the retarded, personality signs may well be confounded with intelligence, making interpretation of these signs quite difficult.

Many Rorschach workers, however, are unwilling to accept research studies as a measure of the utility of this instrument, pointing instead to its clinical significance. To placate the perhaps correct arguments of these individuals, the reviewer has included this section which may be called "clinical validity studies of the Rorschach with retardates." The studies included here are based on the work of some prominent Rorschach experts who gave this test to a retarded population for some reason. Thus Beck (1932) in collaboration with David Levy and Emil Oberholzer, Bruno Klopfer (Hackbusch & Klopfer, 1946), and Zygmunt Piotrowski (1937) have all given the Rorschach to defectives. All have indicated that the Rorschach test is diagnostically useful with defectives. The question that then comes to this reviewer's mind is: Is the Rorschach test diagnostically useful with retardates for the clinician who does not have the interpretative skills of Beck, Levy, Oberholzer, Klopfer, or Piotrowski, or can only the very gifted Rorschach specialist interpret a retardate's profile meaningfully? The answer in this case is probably that the Rorschach is useful for most clinicians, based on the number of additional studies with defectives that have been reported no un-

usual difficulties in administration, scoring, or interpretation (Werner, 1945a; Werner, 1945b; Jolles, 1947a; Jolles, 1947b). One study (Chambers & Hamlin, 1957) even reports satisfactory results using the Rorschach with 26 low grade defectives having a median IQ of 43. Thus, the mass of evidence, scientific or not, does seem to indicate that the experienced clinician can get scorable material using the Rorschach with defectives, though the utility of the scores may be questioned.

6. Rosenzweig PFT: A study by Angelino and Shedd (1957) indicates that retardates do not have substantially different reactions to frustration, rather their reactions are similar to reactions of normal children two years younger than the retardates' CA. This finding, while quite interesting, would have been more useful if the authors had reported whether or not they had to modify the PFT technique to get their data.

7. Thematic Apperception Test (TAT): A number of studies have reported using the TAT with the retarded. Most of them (Beier, *et al.*, 1951; Sarason, 1943; Sarason, 1945), while offering no data on the validity of this test with the retarded, do report that without modification of technique substantial fantasy material was elicited (72% of normal productivity—Beier, Gorlow & Stacey, 1951). However, Avila and Lawson (1962), giving the TAT to 15 mildly retarded male and 9 mildly retarded female adolescents and adults report that the average number of words produced was well below that recommended by Murray, as worth scoring. There was no significant correlation between intelligence and productivity, possibly due to the limited intellectual range tapped. An interesting variation in technique has been that of Lubin (1955), who found that adding color to the TAT increases the productivity of retardates. This finding was also substantiated with normals. Perhaps with the use of color and using cards

having scenes shown by Budhoff (1963) to have the greatest pulling power might maximize the utility of this test with the retarded.

Summary: It would seem that with the exception of the two personality rating scales, which are still in the developmental stage, and the Vineland, which is not exactly a personality measure, no satisfactory non-projective tests have been found for use with retardates. The literature, however, seems to indicate that both the Rorschach and the TAT can be used with the retarded. Of the two, the TAT may have the greatest potential since it may be less confounded with intelligence and has research indicating ways of modifying technique or of selecting specific cards so as to maximize productivity. Additional work should be done with some of the lesser known tests such as the Mosaic Test, HTP, Bender, and Rosenzweig, before they can be used with the same degree of confidence.

REFERENCES

- Abel, T. The Rorschach test and school success among mental defectives. *Rorschach Res. Exch.*, 1945, 105-110.
- Altable, J. The Rorschach psychodiagnostic as applied to deaf-mutes. *Rorschach Res. Exch.*, 1947, 11, 74-79.
- Anastasi, A. *Psychological Testing*. New York: The Macmillan Co., 1954.
- Anderson, H. & Anderson, G. *An introduction to projective techniques*. New Jersey: Prentice-Hall, Inc., 1951.
- Angelino, H. & Shedd, C. C. A study of the reactions to frustration of a group of mentally retarded children as measured by the Rosenzweig picture frustration study. *Psychol. Abstr.*, 1957, 37, 279.
- Avery, C. Social competence of pre-school acoustically handicapped children. *J. except. Child.*, 1948, 15, 71.
- Avila, D., & Lawson, J. The thematic apperception test as a diagnostic tool with retarded adults. *Percept. mot. Skills*, 1962, 15, 323-325.
- Beck, S. The Rorschach test as applied to a feeble-minded group. *Arch. Psychol. N. Y.*, 1932, 21, No. 136.
- Beier, E., Gorlow, L., & Stacey, C. The fantasy life of the mental defective. *Amer. J. ment. Defic.*, 1951, 55, 582-589.
- Bindon, M. D. Make a picture story test findings for rubella deaf children. *J. abnorm. soc. Psychol.*, 1957a, 55, 38-42.
- Bindon, M. D. Rubella deaf children: A Rorschach study employing Munroe inspection technique. *Brit. J. Psychol.*, 1957b, 48, 249-258.
- Bonk, E. Counseling implications of the MMPI for blind people in selected occupations. *Dis. Abstr.*, 1955, 15, 2095.
- Bradway, K. Special competence of exceptional children: III. the deaf, blind, and crippled. *J. except. Child.*, 1937a, 4, 64-69.
- Bradway, K. The social competence of deaf children. *Amer. Ann. of the Deaf.*, 1937b, 82, 122-149.
- Brieland, D. Personality problems of the blind and visually handicapped as revealed by a projective technique. *Amer. Psychologist*, 1950, 5, 340.
- Broida, D., Izard, C., & Cruckshank, W. Thematic apperception reactions of crippled children. *J. clin. Psychol.*, 1950, 243-248.
- Brunschweig, R. A preliminary survey into problems of adjustment among pupils of the Lexington school for the deaf. *Amer. Ann. of the Deaf*, 1942, 87, 224-240.
- Buck, J. N. The H-T-P technique: a quantitative and qualitative scoring manual. *J. clin. Psychol. Monogr. Suppl.*, 1948, No. 5.
- Budoff, M. Animal vs. human figures in a picture story test for young mentally backward children. *Amer. J. ment. Defic.*, 1963, 68, 245-250.
- Buros, O. K. (Ed.) *The fourth mental measurements yearbook*. New Jersey: Gryphon Press, 1953.
- Buros, O. K. (Ed.) *The fifth mental measurements yearbook*. New Jersey: Gryphon Press, 1959.
- Butler, R. L. Responses of institutionalized mentally retarded children to human and to animal pictures. *Amer. J. ment. Defic.*, 1961, 65, 620-622.
- Carr, G. Mosaic differences in non-institutionalized retarded children. *Amer. J. ment. Defic.*, 1958, 62, 908-911.
- Chambers, G., & Hamlin, R. Rorschach inner life capacity of imbeciles under varied conditions. *Amer. J. ment. Defic.*, 1957, 62, 88-95.
- Cross, O. Braille edition of the Minnesota Multiphasic Personality Inventory for use with the Blind. *J. appl. Psychol.*, 1947, 31, 189-198.
- Dean, S. Adjustment testing and personality factors of the blind. *J. consult. Psychol.*, 1957, 21, 171-177.
- Doll, E. *Measurement of social competence: a manual for the Vineland social maturity scale*. Minneapolis: Educational Test Bureau, 1953.
- Donahue, W., & Dabelstein, D. *Psychological diagnosis and counseling of the adult blind*. New York: American Foundation for the Blind, 1947.

- Fujimoto, B. Diagnosis of personality in mentally retarded children by means of the Rorschach test. *Jap. J. Child. Psychiat.*, 1960, 1, 159-165. In *Psychol. Abstr.*, 1962, 36, 366.
- Gallagher, J. Measurement of personality development in pre-adolescent mentally retarded children. *Amer. J. ment. Defic.*, 1959, 64, 296-301.
- Greenbaum, M., Quatere, T., Carruth, B., & Cruckshank, W. Evaluation of a modification of the Thematic Apperception Test for use with physically handicapped children. *J. clin. Psychol.*, 1953, 9, 40-44.
- Greenberg, H., Allison, L., Tewell, M., & Rich, C. The personality of junior high and high school students attending a residential school for the blind. *J. educ. Psychol.*, 1957, 48, 406-410.
- Greenberg, H., & Jordan, S. Differential effects of total blindness and partial sight on several personality traits. *except. Child.*, 1957, 24, 123-124.
- Hackbusch, F., & Klopfer, B. The contribution of projective techniques to the understanding and treatment of children psychometrically diagnosed as feebleminded. *Amer. J. ment. Defic.*, 1946, 51, 15-34.
- Halpern, F. The Rorschach test with children. In Rabin, A., & Haworth, M. (Eds.) *Projective techniques with children*. New York: Grune & Stratton, 1960.
- Hibbeler, H. Personality patterns of white adults with primary glaucoma. *Amer. J. Ophthal.*, 1947, 30, 181-186. In *Psychol. Abstr.*, 1947, 21, 1883.
- Holden, R. The children's apperception test with cerebral palsied and normal children. *Child. Developm.*, 1956, 27, 3-8.
- Jolles, I. A study of mental deficiency by the Rorschach technique. *Amer. J. ment. Defic.*, 1947, 52, 37-42.
- Jolles, I. The diagnostic implications of the Rorschach test in case studies of mental deficiency. *Genet. Psychol. Monogr.*, 1947b, 36, 89-198.
- Kahn, H. Responses of hard of hearing and normal children to frustration. *except. Child.*, 1957, 24, 155-159.
- Kelley, D., & Barrera, E. S. The Rorschach method in the study of mental deficiency: a resume. *Amer. J. ment. Defic.*, 1941, 45, 401-407.
- Kimmel, J. A comparison of children with congenital and acquired orthopedic handicaps on certain personality characteristics. *Dis. Abstr.*, 1959, 19, 3023-3024.
- Krugman, M. IV. Rorschach Study. *Amer. J. Orthopsychiat.*, 1946, 16, 127-133.
- Lebo, D., & Bruce, Roselyn. Projective methods recommended for use with the blind. *J. Psychol.*, 1960, 50, 15-38.
- Lebo, D., & Harrigan, M. Visual and verbal presentation of TAT stimuli. *J. consult. Psychol.*, 1957, 21, 339-342.
- Linde, T., & Patterson, C. H. The MMPI in cerebral palsy. *J. consult. Psychol.*, 1958, 22, 210-212.
- Lubin, N. The effect of color in the Thematic Apperception Test on productions of mentally retarded subjects. *Amer. J. ment. Defic.*, 1955, 60, 366-370.
- McAndrew, H. The use of projective techniques in the personality evaluation of the blind. *Amer. Psychologist*, 1950, 5, 340.
- McCulloch, T., & Girdner, J. Use of the Lowenfeld Mosaic test with mental defectives. *Amer. J. ment. Defic.*, 1949, 53, 486-496.
- McKay, E. Social maturity of the preschool blind child. *Train. Sch. Bull.*, 1936, 33, 146-155.
- Madison, L. E., & Norman, R. A comparison of the performance of stutterers and non-stutterers on the Rosenzweig picture frustration test. *J. clin. Psychol.*, 1952, 8, 179-183.
- Martin, F. Personality development and social adjustment of mentally retarded children. *Amer. J. ment. Defic.*, 1941, 46, 94-101.
- Maxfield, K., & Field, H. The social maturity of the visually handicapped preschool child. *Child. Developm.*, 1942, 13, 1-27.
- Meltzer, H. Personality differences between stuttering and non-stuttering children as indicated by the Rorschach test. *J. Psychol.*, 1944, 17, 39-59.
- Munroe, R. The inspection technique for the Rorschach protocol. In: Abt., L., & Bellak, L. (Eds.) *Projective Psychology*. New York: Grove Press, 1959.
- Myklebust, H., & Burchard, E. A study of the effects of congenital and adventitious deafness on the intelligence, personality, and social maturity of school children. *J. educ. Psychol.*, 1945, 36, 321-343.
- Neyhus, A. The personality of socially well-adjusted adult deaf as revealed by projective tests. *Diss. Abstr.*, 1963, 23, 2589-2590.
- Ogdon, D., & Allee, Ruth. Rorschach relationships with intelligence among familial mental defectives. *Amer. J. ment. Defic.*, 1959, 63, 889-896.
- Palacios, May. Clinical use of the sound test with blind adults. *Diss. Abstr.*, 1959, 30, 1870.
- Pintner, R., & Brunschweig, R. An adjustment inventory for use in schools for the deaf. *Amer. Ann. of the Deaf.*, 1937, 82, 152-167.
- Phillipson, H. The graphomotor projection test. *Brit. J. Psychol.*, 1955, 46, 73.
- Piotrowski, Z. A comparison of congenitally defective children with schizophrenic children in regard to personality structure and intelligence type. *Amer. Ass. ment. Defic.: Proc. and Addr.*, 1937, 42, 78-90.
- Potter, G. S. A method for using the Minnesota Multiphasic Personality Inventory with the blind. In: Donahue, W., & Dabelstein,

- D. *Psychological diagnosis and counseling with the adult blind*. New York: American Foundation for the Blind, 1947.
- Quarrington, B. The performance of stutters on the Rosenzweig picture frustration test. *J. clin. Psychol.*, 1953, 9, 189-192.
- Richardson, L. H. The personality of stutters. *Psychol. Monogr.*, 1944, 56, 1-41.
- Rotter, J. B., & Rafferty, J. E. *Manual for the Rotter incomplete sentences blank: college form*. New York: The Psychological Corporation, 1950.
- Sarason, S. The use of the Thematic Apperception Test with mentally deficient children. *Amer. J. ment. Defic.*, 1945, 272-276.
- Sarason, S., & Sarason, E. K. The discriminatory value of a test pattern with cerebral palsied defective children. *J. clin. Psychol.*, 1947, 3, 127-130.
- Sargent, H. Insight test prognosis in successful and unsuccessful rehabilitation of the blind. *J. proj. Tech.*, 1956, 20, 429-441.
- Satter, G., & McGee, E. Retarded adults who have developed beyond expectation: part II. non-intellectual functions. *Train. Sch. Bull.*, 1954, 51, 67-81.
- Seidenfeld, M. Behavior of post-polio school children on the California test of personality. *Amer. Psychologist.*, 1947, 2, 274.
- Sergeant, R. An investigation of responses of speech defective adults on personality inventories. *Diss. Abstr.*, 1963, 23, 4020-4021.
- Shotwell, A., & Lawrence, E. Mosaic patterns of institutionalized mental defectives. *Amer. J. ment. Defic.*, 1951, 56, 162-168.
- Sloan, W. Prediction of extramural adjustment of mental defectives by use of the Rorschach test. *J. consult. Psychol.*, 1948, 12, 303-309.
- Streng, A., & Kirk, S. The social competence of deaf and hard of hearing children in a public day school. *Amer. Ann. of the Deaf.*, 1938, 83, 244-254.
- Walnut, F. A personality inventory item analysis of individuals who stutter and individuals who have other handicaps. *J. of Speech and Hearing Disorders*, 1954, 19, 220-227.
- Wawraszek, F., Johnson, O., & Schera, J. A comparison of HTP responses of handicapped and non-handicapped children. *J. clin. Psychol.*, 1958, 14, 160-162.
- Wenar, C. The affects of a motor handicap on personality: I. the effects of level of aspiration. *Child Developm.*, 1953, 24, 123-130.
- Wenar, C. The effects of a motor handicap on personality: II. The effects on integrative ability. *Child Developm.*, 1954, 25, 287-294.
- Wenar, C. The effects of a motor handicap on personality: III. The effects on certain fantasies and adjustive techniques. *Child Developm.*, 1956, 27, 9-15.
- Wenar, C. The degree of psychological disturbance in handicapped youth. *Except. Child.*, 1958, 25, 7-15.
- Werner, H. Perceptual behavior of brain-injured children: an experimental study by means of the Rorschach technique. *Genet. Psychol. Monogr.*, 1945a, 31, 51-110.
- Werner, H. Rorschach method applied to two clinical groups of mental defectives. *Amer. J. ment. Defic.*, 1945b, 49, 304-306.

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Received December 26, 1965

Body Image in Hansen's Disease Patients¹

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Summary: In a group of 26 hospitalized male Hansen's disease patients, Barrier, Penetration, and Anatomy scores were obtained as projective indicators of body image, using the Holtzman Inkblot Technique. As predicted, patients did not differ from healthy controls. The body image measures were not related to length of hospitalization nor to observable disfigurement. The hypothesis was strengthened that concepts about the body are not directly associated with physical disability.

This paper is concerned with body image as measured by projective techniques in persons with a chronic disfiguring disease. It considers the relationship of three aspects of body image (Barrier, Penetration, and Anatomy) to hospitalization.

Background

There is a growing body of evidence as summarized in Fisher (1963) and Fisher and Cleveland (1958) that projective measures of body boundaries may tap aspects of a fundamental dimension in personality, that body boundary scores such as Barrier and Penetration are unrelated to length of illness, and that the distributions of scores in disabled populations do not differ significantly from those in healthy controls. Barrier and Penetration are defined in detail by Fisher (1963). Drawing largely on clinical observation, Phillips and Smith (1953) suggest that internal anatomy responses reflect unexpressed destructive impulses which lead to concern about the body and its integrity and that human detail responses also may represent sensitivity about body image.

Hansen's disease is a long-term illness which generally requires isolation from the community but in this century may not involve chronic devastating incapacitation (Shattuck, 1951). Most Hansen's disease patients in Hawaii are Americans of Poly-

nesian ancestry who are well aware that in primitive times leprosy meant banishment, progressive disfigurement, and death. The availability of such a population provided a unique opportunity to test hypotheses about disability and body image derived primarily from Caucasian American samples.

Problem

It was predicted that projective measures of body image in patients with Hansen's disease would not differ significantly from those in a healthy control group and also that these measures would not be significantly related to length of hospitalization and to observable disfigurement.

METHOD

Subjects

The experimental group included 26 male patients between 18 and 60 years of age at the Hansen's disease hospital in Honolulu, Hawaii. Median age was 36.6. At the time of the study, length of hospitalization had ranged from 1 month to 23 years with a median of 33 months. Over four-fifths of the Ss were Americans of Polynesian ethnic origin.

Twenty-six Ss were selected from a group of volunteer male adults to match the experimental Ss in age, race, education, and socio-economic level. None in the control group had experienced a major physical illness. All were employed as firemen, maintenance or service workers.

Procedure

The Holtzman Inkblot Technique

¹A version of this paper was presented at the annual meeting of the American Psychological Association in Chicago, Illinois, September, 1965.

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was administered to each member of the control and experimental groups, following standard procedures. The protocols were then scored by Allardice without knowledge of group membership. Barrier and Penetration responses were identified according to the method developed by Fisher and Cleveland and described by Holtzman, Thorpe, Swartz, and Herron (1961). The Anatomy scores included all references to internal anatomy and to human detail. Scoring reliability exceeded .84 for all measures (Allardice, 1965).

RESULTS

When two-tailed *t* tests were applied to differences between the means, the Barrier, Penetration, and Anatomy scores of the hospitalized groups did not differ significantly from scores of the healthy control group, but Barrier scores of the non-hospitalized Hawaii group were significantly lower than the Barrier scores of the Holtzman et al. (1961) average adults (Table I).

TABLE I — Barrier, Penetration and Anatomy Scores for Hospitalized, Control and Average Groups

| Body image | Group | | |
|-------------|--------------------------------------|-------------------|--|
| | Hospitalized (N=26) | Control (N=26) | Holtzman's Average Adults (N=252) |
| Barrier | | | |
| Range | 0-12 | 0-10 | 0-17 |
| Mean | 4.69 | 3.80 | 5.92 |
| S.D. | 3.42 | 2.42 | 3.50 |
| | Hospitalized-Control <i>t</i> = 1.07 | | |
| | Hospitalized-Average <i>t</i> = 1.73 | | |
| | Control-Average <i>t</i> = 4.00** | | |
| Penetration | | | |
| Range | 0-8 | 0-9 | 0-8 |
| Mean | 2.96 | 2.84 | 2.85 |
| S.D. | 2.19 | 1.96 | 2.16 |
| | Hospitalized-Control <i>t</i> = 0.21 | | |
| | Hospitalized-Average <i>t</i> = 0.24 | | |
| | Control-Average <i>t</i> = 0.02 | | |
| Anatomy | | | |
| Range | 0-45 | 1-42 | |
| Mean | 4.76 | 6.88 | |
| S.D. | 8.84 | 8.73 | |
| | <i>t</i> = 0.88 | | |

** $p < .01$

The correlation within the hospitalized group ($N = 26$) between Barrier and Penetration scores was $-.07$, between Barrier and Anatomy scores $-.27$, and between Penetration and Anatomy scores $-.36$. These correlations failed to attain significance.

There was no significant relation to length of hospitalization when each distribution was dichotomized at the median and chi square with Yates' correction was applied. Seven patients had observable disabilities associated with Hansen's disease; however, inspection of the data indicated no trends which would differentiate these patients from the total group on body image measures.

DISCUSSION

The findings of this research are consistent with Fisher and Cleveland's hypothesis (1958) that body image is not directly related to symptomatology in physical disability. They are also consistent with Wright's (1960) conclusion that personality patterns have not been found to distinguish disability groups. Since the patient group was distinctive in its ethnic origins and in the nature of its disability, the generality of the hypothesis is strengthened.

A simple explanation is offered for the finding that the Hawaii healthy sample had a significantly lower Barrier mean than the mean of the average American adults. Because of Hawaii's mild climate, its residents are less concerned about protecting their bodies from the elements, wear fewer and lighter clothes, and probably are exposed less frequently to bear skin rugs, cellars, tunnels, etc. than are most other Americans.

REFERENCES

- Allardice, Barbara S. Correlates of body image in Hansen's disease patients. Unpublished master's thesis. Honolulu: University of Hawaii, 1965.
- Fisher, S. A further appraisal of the body boundary concept. *Journal of Consulting Psychology*, 1963, 27, 62-74.
- Fisher, S. & Cleveland, S. E. *Body image and*

- personality. Princeton: D. Van Nostrand, 1958.
- Holtzman, W. H., Thorpe, J. S., Swartz, J. D. & Herron, E. W. *Inkblot perception and personality*. Austin: University of Texas, 1961.
- Phillips, L. & Smith, J. *Rorschach interpretation: Advanced technique*. New York: Grune and Stratton, 1953.
- Shattuck, G. C. *Diseases of the tropics*. New York: Appleton-Century-Crofts, 1951.
- Wright, Beatrice A. *Physical disability — a psychological approach*. New York: Harper, 1960.
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Revision received March 29, 1966

The "Meaning" of Rorschach Color Cards as a Function of Color¹

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Summary: This study was aimed at the general problem of differentiating what is elicited by the stimulus characteristics of the Rorschach inkblots and what is emitted by the subject as an expression of his own unique personality. The specific purpose was to determine the effect of color on the connotations of the Rorschach color cards as perceived by schizophrenic patients.

Each of 50 hospitalized male veteran schizophrenic patients rated a 15-scale semantic differential to express his response to each of 14 Rorschach cards: the five color cards, achromatic versions of the five color cards, and two achromatic cards each presented twice.

Results clearly supported the hypothesis that color affected the connotative impact of the Rorschach color cards. With respect to factor scores, there was a tendency for all of the color cards to be rated in the same direction, as higher in evaluation and activity and lower in potency. Differences were also found with respect to ratings on individual scales.

The purpose of this study was to determine the effect of color on the connotations of the Rorschach color cards as perceived by schizophrenic patients.

When Brosin and Fromm reported in 1940 that color blind subjects gave "color shock" signs, Rorschach investigators experienced a "color shock" which is still felt 25 years later. Surveying the literature to 1958, Baughman (1958a) concluded that "color does not have the pervasive effects on behavior that have been so often claimed" (although he did accept as demonstrated an influence of color on conceptual content and card preference). Baughman (1958b) attributed the contradictory results reported in the literature to inherent shortcomings in the Rorschach technique itself and sought a remedy in a different and more systematically contrived set of inkblots. On the other hand, Klopfer (1956) attributed the confusion to the investigators' methods (the isolated sign approach), concluding

that color effects were "clearly demonstrated" when protocols were evaluated by the "clinically more appropriate" global approach.

Since its development by Osgood (Osgood, Suci & Tannenbaum, 1957), the semantic differential has been used in a number of studies aimed at establishing the "meaning" of the Rorschach (Borelli, 1961; Hafner & Rosen, 1961; Kamano, 1960; Little, 1959; Otten & Van de Castel, 1963; Rabin, 1959; Rosen, 1960; Sines, 1960; Zax & Benham, 1961; Zax & Loiselle, 1960). The semantic differential lends itself well to such research in that it taps conceptual as well as affective components of the Ss response. Levy and Kurz (1956) applied this technique specifically to the problem of color, finding differences in connotative impact of chromatic and achromatic slides of Rorschach Cards VIII, IX, and X group-administered to college students, and greater differences for subjects with higher Taylor MAS scores. (In contrast, Van de Castle and Spicher (1964) did not consider that they found any appreciable differences in ratings of chromatic and achromatic photographs of the Holtzman inkblots; nor did they find a difference between "anxious" and "well-adjusted" college students.)

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The present study aimed to clarify the impact of color on the Rorschach by using (a) the semantic differential technique; (b) individually administered, exactly reproduced chromatic and achromatic versions of the color cards; (c) a card-by-card analysis; and (d) highly disturbed subjects who would be expected to show a differential reaction to color if such actually exists.

METHOD

Each of 50 schizophrenic patients was asked to rate a 15-scale semantic differential to express his response to each of 14 Rorschach cards: the five color cards; achromatic versions of the five color cards; and two achromatic cards, each presented twice.

Subjects. Subjects were 50 hospitalized male veterans diagnosed as having schizophrenic reactions without any known organic brain disease. Selection criteria were: open ward status, under 65 years of age, judged by the ward psychologist as being neither illiterate nor mentally defective. The Ishahara Pseudo-Isochromatic Plates were used to screen out color-blind subjects. Three subjects were rejected by the test administrator as not being able to understand instructions. Mean age was 39.16, with a range of 24 to 55. Mean educational level was 11.98 years of schooling, with a range of 8 to 18.

Materials. The stimulus material consisted of 14 Rorschach cards: color cards II, III, VIII, IX, and X and two copies each of cards I and V were taken from the standard Rorschach for individual administration printed by Verlag Hans Huber; achromatic versions of the five color cards, obtained from the same publisher, were printed on the same stock, with the same plates, and by the same presses, but with black ink substituted for the usual colored ink. These cards had been used in an earlier experiment (Crumpton, 1956), but care had been taken to insure that each card had received the same number of presen-

tations to subjects so that essentially the same amount of handling had occurred.

The semantic differential consisted of five scales representing each of three factors: evaluation (ugly-beautiful, dirty-clean, sad-happy, cruel-kind, foolish-wise), potency (soft-hard, light-heavy, small-large, feminine-masculine, weak-strong), and activity (passive-active, slow-fast, cold-hot, dull-sharp, relaxed-tense).

Procedure. The subject was first given the Pseudo-Isochromatic Plates. The examiner then read to the subject the instructions used by Osgood, slightly modified to indicate ratings were to be made of inkblots rather than concepts.

The subject was given a booklet containing 14 semantic differential forms, one for each card to be rated. The booklets were made up in the following way: Fourteen different random orders were established for presenting the 15 scales on a page. The order of each end point of a dimension was randomized at each occurrence, and each order occurred equally often (e.g., ugly-beautiful occurred as often as beautiful-ugly). The 14 pages were assembled randomly into booklets. Booklets were assigned randomly to subjects. This method reduced the possibility of the subject's remembering how he had rated another card, made possible the easy identification of systematic marking tendencies, and randomly distributed any effects of the order of presentation of scales.

To control for order effects in responding to cards, the subject was presented with the 14 Rorschach cards in random order except that no card followed its counterpart (e.g., color card III was never preceded or followed by non-color card III). Each subject was randomly assigned one of the 14 different random orders. The entire rating task was accomplished in one experimental session for each subject.

TABLE I—Results of t-Tests of Differences in Factor Scores Between Chromatic (C) and Achromatic (A) Versions of Each Card

| Card | Evaluation | | Potency | | Activity | |
|------|--------------------|--------|--------------------|---------|--------------------|---------|
| | D _(C-A) | t | D _(C-A) | t | D _(C-D) | t |
| I | 34 | .74 | 25 | .65 | 33 | .76 |
| V | -23 | .62 | -8 | .23 | -18 | .78 |
| II | 19 | .46 | -40 | .98 | 186 | 4.09*** |
| III | 63 | 2.10* | -6 | .14 | 81 | 2.44* |
| VIII | 157 | 1.04 | -109 | 2.39* | 57 | .58 |
| IX | 164 | 2.81** | -238 | 4.60*** | 29 | .58 |
| X | 168 | 3.48** | -180 | 4.78*** | 77 | 1.97 |

*Significant at the .05 level. **Significant at the .01 level. ***Significant at the .001 level.

Two copies each of Cards I and V were used to determine the effects of double presentation of cards. In the randomization of cards and in the treatment of data, one copy of Card I and one copy of Card V were arbitrarily labelled and treated as if they were chromatic. Thus any differences in ratings between Cards I_A and I_C and between Cards V_A and V_C represented variation due to minute differences in the appearance of the same Rorschach cards taken from different sets, and to lack of perfect intra-subject reliability of the semantic differential.

RESULTS AND DISCUSSION

Factor ratings. Each of three factors (evaluation, potency, activity) was represented by five rating scales. A factor difference score was obtained for each subject by summing individual scale ratings to a card and by subtracting the score for the achromatic version of a card from the score given its chromatic counterpart. Table I gives the results of t-tests of differences in factor scores. A positive mean difference indicates that the chromatic card was given a higher factor score than was the achromatic version.

The two copies of Card I were given essentially the same ratings, as were the two copies of Card V. These findings attest to the adequate reliability of the semantic differential technique, as well as indicate that presenting essentially the same card twice does not lead to a change in rating, even under conditions minimizing the effects of memory.

In contrast, the color cards were given clearly different ratings. Eight of the fifteen comparisons yielded a *t* significant at the .05 level or better. The standard chromatic Cards III, IX, and X were evaluated more positively than were the achromatic versions; chromatic Cards VIII, IX, and X were rated less potent than were the achromatic cards; and Cards II and III were rated as more active when they contained color.

Table I also shows that there is a tendency for all of the color cards to be rated in the same direction (higher in evaluation and activity and lower in potency), there being no inconsistency in the direction of the mean difference. With some exceptions, the chromatic cards appear to divide themselves into two groups: e.g. Cards II and III show similar differences, and so do Cards VIII, IX and X.

Rating scales. Each of the 15 rating scales yielded a Chromatic-Achromatic difference score for each pair of cards for each subject. The frequency distribution for Card I_(C-A) and for Card V_(C-A) showed that the average difference to be expected from repeated presentation of cards was close to one scale step. It was, therefore, decided that a difference in rating would have to exceed one scale step to be considered a true difference between the color and the non-color card².

²The analysis reported in Table II was repeated, with a difference of one scale step or more considered a true difference. The results of the two analyses were essentially the same.

Table II gives for each card-pair the rating scales which significantly differentiate the chromatic from the achromatic card. The use of capital letters indicates that the color card was rated higher in that direction (e.g., color Card II was rated as "hotter" than non-color Card II).

TABLE II—Rating Scales
Differentiating Chromatic
from Achromatic Cards

| Card | Scale* | P |
|------|--------------------|-------|
| II | COLD—hot | .0002 |
| | SLOW—fast | .02 |
| | LIGHT—heavy | .05 |
| III | COLD—hot | .002 |
| VIII | UGLY—beautiful | .0003 |
| | DULL—sharp | .005 |
| | DIRTY—clean | .03 |
| IX | UGLY—beautiful | .002 |
| | LIGHT—heavy | .006 |
| | FEMININE—masculine | .007 |
| | COLD—hot | .02 |
| | DIRTY—clean | .03 |
| X | SAD—happy | .03 |
| | DIRTY—clean | .004 |
| | UGLY—beautiful | .02 |
| | PASSIVE—active | .02 |
| | COLD—hot | .02 |
| | LIGHT—heavy | .03 |

| Scale* | Cards with $p < .05$ |
|--------------------|----------------------|
| COLD—hot | II III IX X |
| UGLY—beautiful | VIII IX X |
| DIRTY—clean | VIII IX X |
| LIGHT—heavy | II IX X |
| SLOW—fast | II |
| DULL—sharp | VIII |
| SAD—happy | IX |
| FEMININE—masculine | IX |
| PASSIVE—active | X |

*Use of Capital letters indicates that the chromatic card was rated higher in that direction than was achromatic card.

The probability values listed in Table II were taken from the Tables of the Binomial Probability Distribution, Table II Partial sums (1949). In each case the hypothesis tested was two-tailed, that the proportion of positive or negative differences (of over one scale step) would exceed the expected probability of .5 to a degree significant at the .05 level or better.

There were 30 tests involving Card I and V; not one of these tests yielded a probability of .05 or better. In con-

trast, 18 of the 75 comparisons (5 cards, 15 scales each) of chromatic and achromatic cards gave significant results. Since the same subjects made the various ratings, the tests cannot be considered truly independent, and the expected proportion of results significant at the .05 level is indeterminate. But the obtained proportion (.24) is certainly far beyond what might reasonably occur by chance.

Table II also lists the nine differentiating scales, showing for each the cards on which color influenced the rating. Three scales (cruel-kind, small-large, relaxed-tense) were obviously not influenced by color, and three scales (wise-foolish, strong-weak, soft-hard) might have shown a relationship with a much larger number of cases.

Conclusions. The results clearly support the hypothesis that the presence of color affects the connotative impact of the Rorschach color cards, as perceived by schizophrenic patients. All chromatic cards appeared to be more positively correlated than their achromatic counterparts. Results on the potency and activity factors indicated a grouping of cards II and III, and of cards VIII, IX, and X. The bright red cards II and III were rated as more active with (surprisingly) no difference in potency, while the pastel colored cards VIII, IX, and X were rated as more potent but with no difference in activity (card X approached a significantly more active rating, however).

REFERENCES

- Baughman, E. E. The role of the stimulus in Rorschach responses. *Psychol. Bull.*, 1958, 55, 121-147 (a).
- Baughman, E. E. A new method of Rorschach inquiry. *J. proj. Tech.*, 1958, 22, 381-389 (b).
- Borelli, G. L. A study of meanings of Rorschach cards through use of the semantic differential technique. *Dissertation Abstract*, 1961, 21, (10), 3161-3162.
- Brosin, H. W., & Fromm, E. O. Rorschach and color blindness. *Rorschach Res. Exch.*, 1940, 4, 39-70.

- Crumpton, E. The influence of color on the Rorschach test. *J. proj. Tech.*, 1956, 20, 150-158.
- Grayson, H. M. Rorschach productivity and card preferences as influenced by experimental variation of color and shading. *J. proj. Tech.*, 1956, 20, 288-296.
- Hafner, A. J., & Rosen, E. The meaning of Rorschach inkblots, responses and determinants as perceived by children. *J. proj. Tech. & pers. Assess.*, 1964, 28, 192-200.
- Kamano, D. K. Symbolic significance of Rorschach cards IV and VII. *J. clin. Psychol.*, 1960, 16, 50-52.
- Klopfer, B. *Developments in the Rorschach Technique*, Vol. II. Yonkers-on-Hudson, N. Y.: World Book Co., 1956.
- Levy, L. H., & Kurz, R. B. The connotative impact of color on the Rorschach and its relation to manifest anxiety. *J. Pers.*, 1956, 25, 617-625.
- Little, K. B. Connotations of the Rorschach inkblots. *J. Pers.*, 1959, 27, 397-406.
- Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. *The measurement of meaning*. Univ. Illinois Press, 1957.
- Otten, M. W., & Van de Castle, R. L. A comparison of set "A" of the Holtzman inkblots with the Rorschach by means of the semantic differential. *J. proj. Tech. & pers. Assess.*, 1963, 27, 452-460.
- Rabin, A. I. A contribution to the "meaning" of Rorschach's inkblots via the semantic differential. *J. consult. Psychol.*, 1959, 23, 368-372.
- Rosen, E. Connotative meanings of Rorschach inkblots, responses, and determinants. *J. Pers.*, 1960, 28, 413-426.
- Sines, J. O. An approach to the study of the stimulus significance of the Rorschach inkblots. *J. proj. Tech.*, 1960, 24, 64-66.
- Van de Castle, R. L., & Spicher, R. S. A semantic differential investigation of color on the Holtzman. *J. proj. Tech. & pers. Assess.*, 1964, 28, 491-498.
- Zax, M., & Benham, F. G. The stimulus value of the Rorschach inkblots as perceived by children. *J. proj. Tech.*, 1961, 25, 233-237.
- Zax, M., & Loisele, R. H. Stimulus value of Rorschach inkblots as measured by the semantic differential. *J. clin. Psychol.*, 1960, 16, 160-163.
- Tables of the Binomial Probability Distribution* Appl. Math. Series 6, National Bureau of Standards, Washington: U. S. Government Printing Office, 1949.
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Received October 21, 1965

The Assessment of Anxiety by Means of the Rorschach¹

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Summary: For some years now, a number of studies have made use of the Rorschach as a measure of anxiety. One of the most frequently used anxiety scorings of the Rorschach has been the approach devised by Elizur, a system which involves the more or less psychometric evaluation of the content of the response. Using the criteria suggested in the APA *Technical Recommendations*—such as the definition of construct, interscorer reliability, effect of response total, stability over time, criterion and construct validity, and the like—this paper presents a review of the research carried out with this measure of anxiety. In light of the available research evidence, the value and limitations of the anxiety scoring of the Rorschach are discussed, with particular note being made as to the potential usefulness in its research applications.

Anxiety probably represents one of the most important concepts currently used in the explanation of human behavior. Anxiety, often an indication of internal conflict, is believed to be related to not only psychopathological conditions, but to so-called "normal" behavior as well. Because of the intensely unpleasant psychological and physiological characteristics of anxiety, individuals will behave in various ways or react with all sorts of symptoms in order to diminish this emotional state. Should the anxiety reach too high a level, a disruption of the individual's ability to function ensues.

The purpose of this paper is to evaluate the Rorschach as a measure of anxiety in light of the research evidence accumulated to date. In particular, the focus is on the scoring system devised by Elizur (1949), an approach which is based on the more or less psychometric scoring of the content, rather than the formal elements of the response. Although there are some minor variations of Elizur's scoring criteria (Armand, 1959; DeVos, 1952), his system has been the most popular by far.

With the great popularity of Tay-

lor's Manifest Anxiety Scale, relatively little recognition has been given to Elizur's anxiety scoring of the Rorschach. Surprisingly enough, however, a fair number of research studies have employed the Elizur scoring over the years. This paper will review the research literature on this measure, with the hope that it will make more evident the possible utility of the Rorschach as a research measure of anxiety.

The general format to be followed in the evaluation is based on the criteria set forth in the *Technical Recommendations for Psychological Tests and Diagnostic Techniques* (American Psychological Association, 1954). The importance of applying these evaluative standards to projective techniques has been discussed more fully elsewhere (Goldfried, 1966a), and has been demonstrated by the evaluation of the Rorschach as a measure of homosexuality (Goldfried, 1966b).

Before actually describing the nature of the scoring and the research in which it has been used, some brief definition of the construct of anxiety might be considered.

DEFINITION OF THE CONSTRUCT

In *The Problem of Anxiety*, Freud (1936) presented his revised description of the anxiety construct. At the most general level, Freud indicated that anxiety may be viewed as the

¹This paper was prepared in conjunction with a project supported in part by Public Health Service Grant No. MH 10078-01, from the National Institute of Mental Health. The author is grateful to Richard S. Lazarus for his helpful comments on an earlier version of this paper.

individual's affective response to a state of "danger." More specifically, the potential danger to the individual (ego) may stem from his own unacceptable impulses (neurotic anxiety), the fear of punishment from one's conscience (moral anxiety), or some actual physical threat from the external environment (real anxiety). These different conceptualizations of anxiety are more typically referred to as simply anxiety, guilt, and fear, respectively.

Elizur's definition of the construct his scoring of the Rorschach purports to measure falls more in line with what is usually termed "anxiety," rather than "fear" or "guilt." Although he says little explicitly about the origins of the emotional condition, Elizur implies that this condition of high drive or arousal has an internal, rather than external basis. Further, the conceptualization of anxiety reflected in the scoring system refers to experienced anxiety, rather than "unconscious anxiety" — that is, the anxiety which has been successfully "bound" by means of defensive maneuvers. Still further, the anxiety level indicated by Elizur's content scoring may be viewed as reflecting more of a relatively general personality characteristic of the individual, rather than the transitory reaction to a stressful situation. This anxious characteristic of the individual may in turn be used to infer a conflicted and generally insecure personality make-up as well.

Anxiety may be conceptualized as not only the response to an internal conflict or frustration, but as a stimulus for further behavior as well. Given a certain level of anxiety, individuals will vary in the specific way in which this tension is manifested. Thus, Elizur has noted: "Anxiety is thought of as an inner state of insecurity which may take one or more of the following forms: fears, phobias, lack of self-confidence, extreme shyness, ideas of reference and marked sensitivity" (p. 248). In addition to the way in which

the anxiety is expressed, people with comparable levels of anxiety will differ as to the defenses they typically use to reduce or eliminate the state of tension.

One final point before continuing. The anxiety presumed to be revealed in the Rorschach content scoring refers only to *level of anxiety*, and not the way in which it is expressed or reduced. In order to assess these latter characteristics, the individual's personality style and preferred defensive behaviors would need to be considered.

ANXIETY SCORING SYSTEM

Elizur's anxiety scoring system can be learned and used without much difficulty. In scoring a protocol for anxiety, only the content of the response is used — with no regard for card, location, or determinants. Although an inquiry may be called for in order to score certain responses, the type of questioning required need not be of the more traditional type. Thus, to a response of "A large animal" given in the free association, the simple question of the "tell-me-more-about-it" variety might result in an elaboration such as: "It's very frightening looking." Regardless of whether the anxiety is revealed in the free association or in the inquiry, the response is still scored according to the same criteria.

Elizur's specific criteria used in scoring a protocol for anxiety, as well as some sample responses, are described below.

Scoring Criteria. As already noted above, the content of the response, regardless of its location, is scored for degree of anxiety manifested. If anxiety is "expressed obviously and explicitly" in the response, a score of "A" is assigned. If anxiety is expressed clearly but symbolically, the response is given a score of "a." If no anxiety at all is reflected, the response is considered "neutral" and consequently remains unscored. Six general types

of responses, arranged roughly according to decreasing level of anxiety reflected in them, include: (1) Expressive Behavior, (2) Emotions and Attitudes Expressed or Implied, (3) Cultural Stereotypes of Fear, (4) Symbolic Responses, (5) Double Connotation, and (6) Unscorable or "Neutral" Responses.

I. Expressive Behavior

Score A: If anxiety in any way is associated with the *behavior* of the figure perceived (e.g. "Animal retreating," "Man being charged by a bull," "Person hanging onto a cliff," "Woman huddled over in fear," etc.).

II. Emotions and Attitudes Expressed or Implied

Score A: If the response clearly reflects the emotions or attitudes of fear, unpleasantness, sorrow, pity, etc. The feeling or attitude may be related to the *subject* himself (e.g. "It's the kind of bug that scares me") or to an object in the *percept* (e.g. "A frightened animal"). Further, the feeling or attitude may be *implied*, such as in the response "a dangerous place."

Score a: If anxiety is expressed or implied in the feelings and attitudes, but to a lesser extent than that indicated above (e.g. "Man with a concerned look," "Sad child," "Timid person," "Unpleasant animal," "Worrisome-looking cliff," etc.).

III. Cultural Stereotypes of Fear

Score A: If the response generally connotes fear in our society. Scoring of this type of response should be done cautiously (e.g. "Atomic explosion," "Blood," "Ghosts," "Graveyard," etc.).

Score a: If the connotation involves more a "moderate degree of unpleasantness" than actual fear. As in the case with the *A* responses in this general category, scoring for cultural stereotype should be done conservatively (e.g. "Altar," "Cobweb," "Firecracker," "Jack-o-Lantern," "Spiders," etc.).

IV. Symbolic Responses

Score a: If the response reflects fear or anxiety, but in symbolic form. As is the case with cultural stereotypes, symbolic responses should be scored conservatively (e.g. "Animals balancing on a rock," "Black signifies death," "Cancerous tumor," "Dead leaves," etc.).

V. Double Connotation

Score a: If the response clearly reflects *both* anxiety and hostility, or if it is not clear as to which of the two emotions is involved (e.g. "Frightened animal about to attack," "Headless man," "Man being hanged," "Person being grabbed from behind," "Police-man," etc.).²

VI. Unscorable or "Neutral" Responses

Do not score: If the response, in both its elaborated or unelaborated form, reflects *no anxiety* as determined by any of the above criteria (e.g. "Animal skin," "Bears," "Beggar," "Hammer," "Rocks," "X-ray," etc.).

Interscorer Reliability. The research evidence indicates that there is a fairly high degree of interscorer agreement for Elizur's scoring system. In studies comparing the reliability between two scorers, the obtained correlations have been found to be .99 (Sanders and Cleveland, 1953), .94 (Cummings, 1954), .95 and .90 (Forsyth, 1959), and an intraclass r of .81 (Mogar, 1962). The reliability coefficients reported by Forsyth (1959) were between his own scoring and the scorings of graduate students' wives, demonstrating the relative ease with which the criteria may be applied. Elizur (1949) similarly compared the reliability among eight inexperienced scorers and found an average correlation of .77. A comparison of Elizur's own scoring with the average scoring of these eight judges yielded a correlation of .89.

Brief note might be taken of For-

²For a complete description of the criteria for hostility scoring, see Elizur (1949).

synth's (1959) finding regarding the *intrascorer* reliability. With a one-month interval, Forsyth found a .98 correlation between his two sets of scores.

It is clear, then, that even with only a minimal amount of experience with the criteria, one can use Elizur's anxiety scoring of the Rorschach with a fairly high degree of reliability.

Summary Scores. Although there are five separate categories under which responses may be scored for anxiety, these different classifications are used simply to facilitate the process of scoring and are not taken into account in summarizing the protocol. Rather, an overall Anxiety Level (*AL*) score is arrived at by counting up the weighted number of anxiety-related responses in the record. More specifically, *AL* is computed by first assigning a weight of 2 to all those responses scored as "A," and a weight of 1 to those responses scored as "a;" *AL* simply represents the total of all the weights.

The scoring system depends upon the content of the response only, and Elizur has made no provision for differentially scoring anxiety-related responses which do, and which *do not* agree with the form demands of the blot. Inasmuch as minus responses presumably reflect a distortion produced by some relatively strong inner state or characteristic of the individual, it would seem appropriate to utilize this reasoning in scoring for anxiety. An additional weighting for anxiety-related responses of minus form level can involve just that — namely, an additional weight of one point assigned to minus responses scored "A" and "a."

As is the case with most other approaches to the Rorschach, there is the likelihood that the summary scores will mean very different things for protocols of different lengths. This is "the-effect-of-R" issue which continues to haunt us in the interpretation of Rorschach scores. With respect to the anxiety scoring, the findings

regarding the effect of total R on *AL* are somewhat equivocal. Several studies have found that, at least in the case of college students, the longer the Rorschach protocol, the higher the *AL* score obtained. The significant positive correlations reported between total R and *AL* have been .64 (Sanders and Cleveland, 1953), .50 (Westrope, 1953), and .25 (Goodstein, 1954). On the other hand, Stewart (1950) found that although *AL* and therapists' ratings were positively related, there was no difference in R between those rated high and those rated as low in anxiety. Page (1957), who found no relationship between frequency of daydreams and *AL* for college females, did find a higher R for the more frequent daydreamers. While Stewart and Page's results offer some weak evidence that *AL* and R are not necessarily related, there are still other findings, which suggest that *AL* is *inversely* related to R. Thus, Gorlow, Zimet, and Fine (1952) report that while delinquent adolescents obtained significantly higher *AL* scores than non-delinquents, the total R for the delinquents was lower. Similarly, Grauer (1953) indicates that although good prognosis schizophrenics had a higher *AL*% than poor prognosis schizophrenics, the good prognosis group obtained fewer R.

Despite these somewhat conflicting findings, the positive correlations obtained by Sanders and Cleveland (1953), Westrope (1953), and Goodstein (1954) — which provide a more direct test of the relationship between *AL* and R than do the other studies — seem to be enough of an indication that high *AL* scores will be obtained in longer Rorschach records. The effect of R can be controlled for by the use of *AL*% instead of *AL* scores, requesting subjects to give a fixed number of responses to each card, deciding to score only the first response to each card, or first classifying subjects into high and low total R before comparing groups.

STABILITY OVER TIME

The definition of anxiety, as it relates to what the Elizur scoring purports to measure, implies more of a long-term personality characteristic than it does a transitory emotional state. Consequently, studies on the stability of *AL* scores over time are clearly in order.

As yet, there has been no good, direct test of the stability of *AL* scores over time. Although there are a couple of studies which suggest that stability of scores does exist, the evidence is not strong enough to be very convincing (Epstein, Nelson, and Tanofsky, 1957; Lucas, 1961).

Epstein *et al.* (1957) gave a small group of 16 college students (eight males and eight females) 10 different sets of homemade inkblots. Each different 10-blot set was group-administered over a period of five weeks, with two sets given per week. The responses were scored according to Elizur's anxiety criteria, and a reliability coefficient was derived from an analysis of variance of these scores. Across all 10 sets, the obtained coefficient was .26 ($p < .001$). Further, the mean *AL* scores among the 10 administrations were not found to differ significantly from each other.

As part of a study to test the effects of frustration on hostile Rorschach responses, Lucas (1961) additionally scored the protocols for *AL*. There was an eight-week interval between the two Rorschach administrations for both experimental and control groups — subjects in the former group being depreciated by the experimenter prior to the second testing. Lucas used 9-year-olds as subjects, with an *N* of 28 in each of the two groups. The results indicated no change in *AL* for *Ss* in either of the two conditions. Inasmuch as the two Rorschach administrations were carried out to test the results of a specific experimental manipulation, the relationship between the scores in the two testings was not reported in terms of correlation coefficients.

As mentioned above, the evidence regarding the stability of *AL* scores is at best suggestive. Epstein *et al.* (1957) used a small and homogeneous group, did not use the actual Rorschach cards, and group-administered the tests. Lucas' (1961) sample was similarly small and homogeneous, and no estimate of degree of relationship is provided for the two administrations. Consequently, the need to demonstrate the stability of *AL* scores over time continues to exist.

VALIDITY

Despite the fact that criterion-type validity research — particularly concurrent validity — is completely appropriate in the evaluation of Elizur's anxiety scoring, the large majority of studies are related to the construct validity of the system. This may largely be due to the fact that the content scoring for anxiety, because of the ease with which it can be done, is typically included in studies along with a number of other (Rorschach and non-Rorschach) indices. Consequently, the relationship between *AL* and the experimental groups may not be a direct one, as it would be in the case of a criterion validity study. The relevance of anxiety to the particular group may instead have to be inferred from theory, thereby placing the study into the construct validity classification.

After a brief discussion of the available criterion validity studies (concurrent and predictive), we shall describe the evidence for the construct validity of the system.

Criterion Validity. It seems clear enough how, perhaps by means of ratings, concurrent criterion groups can be formed to represent varying degrees of anxiety. It is less clear how to go about setting up a criterion group about which *AL* scores will be used to make some prediction—at least if the criterion group must reflect level of anxiety. In fact, the scoring system itself purports to measure how anxious a person is, *not* how anxious

he will be. The only type of research which might remotely qualify for the evaluation of the system's predictive validity are those studies in which the criterion measure is only indirectly related to level of anxiety (e.g. course of hospitalization). There is some obvious overlap here with construct validation, and two of the studies which are relevant to both predictive and construct research (Grauer, 1953; Stotsky, 1952) will be discussed under the two validity headings.

Concurrent Validity

The only two studies which are related to the concurrent validity of the system (Elizur, 1949; Stewart, 1950) have both made use of ratings in the definition of the criterion groups.

Elizur (1949) interviewed 20 volunteer college students for the purpose of obtaining information regarding anxiety, hostility, dependency, and submissiveness. As Elizur was the only interviewer in this study, the only possible reliability check was on the ratings made from the interview notes; the interjudge reliability for the ratings on each of the four variables was found to be good. Elizur reports that between *AL* and the interview ratings of anxiety, the obtained correlation was .71 ($p < .01$). Considering the size and homogeneity of the group, this finding is quite impressive. Rorschach *AL* was also found to be significantly related to ratings of hostility ($r = .46$, $p < .05$), but not dependency ($r = .23$) or submissiveness ($r = .07$).

Using 112 male patients in a V.A. Mental Hygiene Clinic, Stewart (1950) obtained therapists' ratings of anxiety. The ratings, which were done after the patient had at least eight therapy sessions, were made on the basis of the therapists' observations of verbalized anxiety, anxious behavior, and anxiety-related symptoms. The therapists were predominantly experienced psychiatrists, psychologists, or social workers; no estimate of

intrarater or interrater reliability was reported. The obtained relationship between *AL* and a median split of therapists' ratings of anxiety (i.e. high versus low) was expressed by a phi coefficient of .25 ($p < .01$); from this value, the estimated Pearson r was .39.

In sum, the findings of Elizur (1949) and Stewart (1950) are quite favorable in the support they give for the concurrent validity of the Rorschach as a measure of anxiety.

Predictive Validity

The Elizur scoring for anxiety has been used to predict length of hospitalization for schizophrenics (Grauer, 1953; Stotsky, 1952), success in psychotherapy (Gallagher, 1954), and, because it was included along with a number of other Rorschach scores, course of illness in tuberculosis patients (Cohen, 1954).

Based on the hypothesis that the higher the level of anxiety in schizophrenics, the greater the likelihood they are still struggling with their conflicts, Grauer (1953) compared the pre-treatment *AL* scores of 18 "improved" and 18 "unimproved" paranoid schizophrenics. Improvement was defined by whether or not the patient remained in the hospital after a series of shock treatments. Although Grauer does not indicate the exact length of hospitalization for the two groups, he does point out that the unimproved group had been transferred to long-term treatment and had been hospitalized twice as long as the improved group. The two groups of patients, all of whom were male, were matched on the basis of age, I.Q., and years of education. Grauer's findings were consistent with his hypothesis, in that the improved group had a significantly higher *AL*%. In a similar study by Stotsky (1952), the admission *AL* scores of remitting schizophrenics were greater than the scores of nonremitting schizophrenics, although the difference failed to reach statistical significance (p between .10 and .20).

Gallagher (1954) attempted to use *AL* as a prognostic indicator for psychotherapy. He compared the pretherapy scores of 15 most successful cases, 15 least successful, and 34 dropouts (after one or two sessions). The *Ss* were all college students at a university clinic, and the therapist was a graduate student with a client-centered orientation. "Success" was determined by ratings of the therapist, client, and the difference in emotional tone between the first and last session. The median number of sessions for the two groups of remainers was between five and six. The results of the study failed to indicate any difference in *AL* among the three groups.

Cohen (1954), who attempted to use a number of Rorschach scores to predict the course of illness in pulmonary tuberculosis patients, found *AL* to be unrelated to prognosis.

Although some evidence does exist that Elizur's scoring for anxiety has some possibility of estimating length of hospitalization in schizophrenics, at least on a group basis, the prognostic utility of the system *per se* is of necessity limited. Level of anxiety is only one of the many factors which needs to be considered in assessing prognosis. The more appropriate use of *AL* in either its research or clinical application is as a concurrent measure, and any predictions made about a *S's* future status will have to be inferred from not only currently existing anxiety level, but from whatever other variables might be relevant to that particular type of prediction.

Construct Validity. As mentioned earlier, the majority of validity studies on Elizur's anxiety scoring system are of the construct type. For a few of these studies (e.g. Gorlow *et al.*, 1952; Page, 1957) the precise reason for hypothesizing differences in *AL* between groups is vague, possibly because *AL* was used as just one of a number of measures on which differences were sought.

In a discussion of construct validity,

Campbell (1960) has suggested that a distinction be made between nomological and trait validity. Although both approaches to construct validity entail the use of the measuring instrument in testing some sort of hypothetical relationship, nomological validity involves the test of an hypothesis derived from theory, whereas trait validity is generally associated with attempts to correlate the measuring instrument in question with other related measures. In evaluating the construct validity of the anxiety scoring of the Rorschach, the research literature relevant to both nomological and trait validity is discussed.

Nomological Validity

The research on the nomological validity of the anxiety content scoring includes studies involving (1) the relationship between *AL* and symptoms or characteristics believed to be a reflection of anxiety, (2) attempts to bring about change in *AL*, and (3) the prediction of differential performance between groups obtaining different *AL* scores.

Relation to symptoms or characteristics reflecting anxiety. Although not all clearly reflect the presence of anxiety, the symptoms and behavioral characteristics to which Rorschach *AL* has been related are as follows: nailbiting (Cummings, 1954), teeth-grinding (Vernallis, 1955), neurosis (Elizur, 1949), psychosis, neurosis, and personality disorders (Ullmann and Hunrichs, 1958; Zimet and Brackbill, 1956), coronary diseases (Cleveland and Johnson, 1962), delinquency (Gorlow *et al.*, 1952), daydreaming (Page, 1957), and academic probation (Lit, 1956).

Based on the hypothesis that nailbiting is at least in part a reflection of anxiety, Cummings (1954) tested a group of 70 nailbiting children between the ages of 10 and 14 years. Although it was clearly indicated that they all tended to bite their nails, the children varied as to the severity of nailbiting. The obtained correlation

between *AL* and severity of nailbiting turned out to be low but significant ($r=.28$, $p<.05$). This correlation might have been somewhat suppressed in that it was based on a relatively homogeneous population (all nailbiters); had non-nailbiters been used as well, a stronger relationship might have been obtained.

Vernallis (1955) hypothesized that teeth-grinders should obtain higher *AL* scores than normal controls, in that this symptomatic behavior was in part indicative of anxiety and tension. Based on a questionnaire distributed to a pool of college students, two groups were formed: 40 teeth-grinders and 40 matched controls. Although low, the resulting biserial r with *AL* proved to be statistically significant ($r=.29$, $p<.05$).

A comparison between 22 neurotics and 22 normal controls (matched for age, sex, and I.Q.) carried out by Elizur (1949) revealed, as per expectation, that the neurotic *Ss* obtained significantly higher *AL* scores. Zimet and Brackbill (1956) also studied the relationship of anxiety to diagnosis, but instead chose to test the null hypothesis. Specifically, they predicted that contrary to traditional notions of diagnosis, psychotics, neurotics, and character disorders would show no difference in Rorschach anxiety level. The obtained *AL* scores for all three groups were practically identical, with no significant differences emerging. In a replication and extension of the study, Ullmann and Hunrichs (1958) did find that character disorders had higher scores than either neurotics or psychotics, but even more interesting, that neurotics and psychotics who were referred for testing tended to be more anxious than neurotics and psychotics who were tested routinely.

In a study carried out by Cleveland and Johnson (1962), the hypothesis tested was that coronary patients may be characterized as being under a state of chronic tension. In a com-

parison of hospitalized acute myocardial infarction patients with matched noncoronary patients about to undergo surgery for various other physical disorders, the authors were successful in the confirmation of their prediction.

Although it is not completely evident that adolescent delinquents should necessarily be more anxious than nondelinquents, Gorlow *et al.* (1952) compared the Rorschach records of 15 delinquents randomly chosen from court files with a group of 13 matched controls. Despite the small *N*, as well as the fact that the nondelinquents gave more responses on the Rorschach, the delinquent group obtained a significantly higher *AL*.

From a larger pool of college females, Page (1957) selected a group of 20 high and 20 low scorers on a scale measuring the frequency of daydreams. Using the *AL* scores obtained from a group Rorschach, Page found that the higher scores obtained for the more frequent daydreamers failed to reach statistical significance ($p<.10$). It would seem unlikely, however, that daydreaming *per se* should be related to anxiety level. Instead, one would expect that the particular content of the daydreams should bear some relationship to *AL*. For example, higher anxiety scores may be anticipated for those whose daydreams are phobic in nature. A follow-up of Page's study, classifying daydreams (or even ordinary dreams) according to content, would provide a more relevant test of the anxiety scoring system's construct validity.

Based on the assumption that academic difficulty in college is in part a function of emotional problems, Lit (1956) attempted to relate Rorschach anxiety level to academic achievement. The anxiety scores of probation students failed to differ significantly from the scores obtained by a group of dean's list students matched on the basis of age, sex, class, and scholastic aptitude. An obvious difficulty with

this study is that only the two extremes were compared, both of which might be composed of students who are very anxious, although for different reasons. The inclusion of a group of "average" students would have provided a better test of the hypothesis.

Although the results of studies described above are not uniformly favorable to the validity of Elizur's scoring for anxiety, not all of these studies have provided good tests of the system's construct validity; the legitimacy of the hypothesis in many of these studies may be called into question.

The negative results obtained by comparing probational students with dean's list students and frequent daydreamers with infrequent daydreamers, are not too surprising, in that there is no good theoretical reason for expecting these groups to differ. Even though adolescent delinquents were in fact found to have higher *AL* scores than nondelinquents, the reasons for this predicted difference are not completely evident. In considering the study by Zimet and Brackbill (1956) which compared psychotics, neurotics, and personality disorders, it is not very clear whether the evidence can be said to be for or against the validity of Elizur's system. On the one hand, the authors have actually confirmed their hypothesis that the three groups would not differ in their *AL* scores. On the other hand, apart from the fact that their test of the null hypothesis is questionable methodologically, Zimet and Brackbill acknowledge that their hypothesis was contrary to traditional expectation. Depending on whose hypothesis one is willing to accept—Zimet and Brackbill's or traditional—the results of the study may be taken as contributing either favorably or unfavorably to the construct validity of the scoring system. The finding of Ullmann and Hunrichs (1958) that patients referred for testing, presumably because of complications regarding status or diagnosis, obtain higher *AL* scores

than those patients who are tested routinely, however, may be interpreted as offering some support for the anxiety scoring.

The hypothesis that nailbiting is a behavioral manifestation of anxiety is considerably clearer, and has been confirmed with the use of Rorschach *AL* scores. The view of teeth-grinding as a manifestation of anxiety has similarly been successfully tested by means of the Rorschach. Further, the relatively well-accepted hypotheses that neurotics tend to be more anxious than normals, and that coronary patients are more tense than non-coronary patients, have been borne out with the scoring system.

It would appear, then, that for those studies which have provided a poor or ambiguous test of the construct validity of the anxiety scoring, the results have been negative. However, for those studies in which the symptoms or behavioral characteristics investigated have a clearer theoretical relationship to the construct of anxiety, the findings have reflected more favorably on the validity of the scoring system.

Induction of changes in AL. Several attempts have been made to induce changes, a decrement as well as an increment, in the *S*'s anxiety level on the Rorschach. The specific approaches have involved carbon dioxide treatment (Lebo, Toal, and Brick, 1960), examiner differences (Sanders and Cleveland, 1953), experimentally induced "frustration stress" (Kates and Schwartz, 1958; Lucas, 1961), and the elimination of color and shading in the blots (Forsyth, 1959).

Lebo *et al.* (1960) selected a group of 24 male prisoners from those inmates who were referred to the prison psychiatrist; the predominant symptom in all cases had been anxiety. The experimental group consisted of 12 patients who were given carbon dioxide treatment; the number of treatments ranged from 14 to 22, with a

mean of 19.2. The control group was matched on the basis of age, I.Q., and length of institutionalization. Although Lebo *et al.* mention that the interval between the two administrations of the Rorschach was the same for both groups, the actual time between the two testings is not specified. Using a one-tailed test, a significant ($p < .05$) decrease in *AL*% was found for the experimental group between the two administrations. The pre-post difference for the control group was not significant with a two-tailed test, but would have been significant at the .05 level had a one-tailed test been used here as well. The controversy concerning the appropriateness of one-tailed tests notwithstanding (Eysenck, 1960; Goldfried, 1959), it is clear that the decrement in the experimental group cannot legitimately be attributed to the carbon dioxide treatment. In light of other findings (Kates and Schwartz, 1958; Lucas, 1961) indicating no change in pre-post *AL* for control subjects, it does not seem likely that the decrement in the control subjects of Lebo *et al.*, which admittedly only reached significance with a one-tailed test, was simply a function of the time between the two administrations. Perhaps something akin to the "Hawthorne effect" was operating in the study by Lebo *et al.*, whereby the anxiety level of the patients was somewhat alleviated by the attention they received (i.e. having been referred to the prison psychiatrist and given the Rorschach). This interpretation is admittedly speculative.

Sanders and Cleveland (1953) studied the effect of the examiners' own anxiety and hostility level on the Rorschach *AL* scores of subjects. Nine graduate students, who had relatively little experience in administering the Rorschach, were given the Rorschach themselves and then each administered it to 30 undergraduates. Each of the 270 undergraduates was asked to rate his examiner at the end of the testing with regard to his anxiety

and hostility; these ratings were used as estimates of the examiners' overt levels of anxiety and hostility. The examiners' covert levels of anxiety and hostility were based on their own Rorschach *AL* and Hostility Level³ scores, respectively. The results of this study indicated that the subjects' *AL* scores were not related to either the level of anxiety or hostility (overt and covert) of the examiner. These findings in themselves cannot be taken as conclusive evidence against the effect of the examiner's personality characteristics on the subject's obtained *AL* score, especially in light of the non-representativeness of the examiners (cf. Hammond, 1954). In addition, the very design of the study itself is based on paradoxical reasoning whereby the validity of the anxiety scoring of the Rorschach is taken for granted at one point — in characterizing the graduate examiners — but put to the test at another — in evaluating the scores obtained by the undergraduate subjects.

As part of a study to test the effect of frustration on Rorschach hostility level, Lucas (1961) scored the protocols of two groups of 9-year-olds for *AL* as well. Neither the group which was frustrated (failure on a task and depreciation by the examiner) nor the control group showed any change in *AL* between the two Rorschach testings. Kates and Schwartz (1958) used two small groups of college students in a similar study, presenting the "stress" to the experimental group by means of written descriptions of their poor adjustment; this negative description was said to have been based on their initial testing. The Rorschach and the Behn-Rorschach administrations were counterbalanced within both groups, with a one- to two-week interval between testings. The findings revealed no change in *AL* for either the experimental or control group. Although the purpose of the study presumably was to in-

³See footnote 2.

crease *AL* as a function of this "self-esteem stress," one might have also predicted a decrease in *AL* for the experimental group; inasmuch as these *Ss* had done poorly during the first testing, this was a chance for them to look healthier. The temptation to use these findings as evidence against situational influences (either "stress" or "faking good") on obtained *AL* scores should be tempered somewhat by the fact that only 12 subjects were used in each of the two groups.

Forsyth (1959) was interested in studying the effect of color and shading on *AL*, and made use of three different sets of Rorschach cards, each of which was administered to separate groups of 30 *Ss* each. In addition to the standard set, Forsyth used achromatic (no color) and silhouette (no shading) sets; these two experimental sets of cards were exactly the same as the Rorschach blots, except for the variables of color and shading, respectively. The results indicated that neither color nor shading influenced the *AL* scores obtained.

According to our earlier conceptualization of what *AL* purports to reflect, "anxiety" was seen as the general state of insecurity which was more of a personality trait than a reaction to some specific stressful situation. Consequently, attempts to induce changes in *AL* by means of some short-term experimental manipulation should not prove to be too successful. As described above, the studies which attempted to alter *AL* by means of carbon dioxide treatment, variations in the examiner's anxiety and hostility levels, mild "stress" in the form of personal depreciation, and variation in the color and shading of the blots have all yielded negative results. As the inability to bring about changes in *AL* might have been a function of methodological weaknesses in the studies, the interpretation of these findings as providing evidence for the stability of the *AL* score should be made with caution.

Differential performance between groups at different anxiety levels. Rorschach *AL* has been used to predict remission among schizophrenics (Grauer, 1953; Stotsky, 1952) and to estimate performance decrement under stress (Westrope, 1953). Although the studies by Grauer and Stotsky have already been discussed in connection with the predictive validity of the system, they will again be mentioned here briefly because of their relevance to construct validity.

Grauer (1953) hypothesized that the presence of anxiety in hospitalized schizophrenics was a reflection of their continuing struggle with their conflicts; hence, these patients should have a better prognosis than patients for whom less anxiety is present. This hypothesis was confirmed, in that discharged paranoid schizophrenics showed a significantly higher admission *AL*% than long-term patients. Stotsky (1952) also found remitting schizophrenics to have had higher *AL* scores upon admission than nonremitting schizophrenics, although the obtained difference only "approached" statistical significance (p between .10 and .20).

Westrope (1953) set out to determine whether or not *AL* reflected the extent to which a performance decrement would occur under conditions of stress. Specifically, she hypothesized that in comparison to *Ss* obtaining lower *AL* scores, *Ss* with higher scores would show greater impairment in their digit symbol performance as a function of stress; the obtained non-significant Pearson r of .15 between *AL* and performance decrement failed to confirm this hypothesis. Although the hypothesis seems fair enough—more insecure individuals are more easily affected by stress—there is some doubt that the test of it was adequate. The experimental induction of "stress" seems to have been sufficient, in that *Ss* were told that their performance on some earlier task had been poor, that they were being observed by psychologists, and that they

could expect shock almost any time. The deficiency in the study instead was with respect to the Ss used. In line with the primary purpose of her study, Westrope originally selected 24 high and 24 low anxiety scorers on the Taylor Manifest Anxiety Scale. Inasmuch as she found that the Taylor scores in her sample were not related to *AL* scores, however, the group of 48 subjects did not actually include those individuals who obtained scores at the extremes of an *AL* distribution. In fact, relative to the findings reported in other studies, *AL* was somewhat *high* for even the low Taylor scorers. Had subjects constituting the high and low points on the *AL* distribution been used, rather than the more homogeneous sample which actually was used, the findings of the study might have turned out more in line with the hypothesis.

Trait Validity

This section will cover those studies in which Rorschach *AL* has been related to (1) self-ratings of anxiety, (2) other anxiety measures, and (3) nonanxiety measures.

Relation to self-ratings. The only attempt to relate *AL* to self-ratings was carried out by Elizur (1949), who had a group of 30 volunteers complete a self-administered "questionnaire" and set of "self-ratings." In the questionnaire, subjects were asked to rate themselves on 55 items, which were either directly or indirectly related to personality characteristics indicative of anxiety, hostility, or both. For the self-ratings, the emphasis was on the subject's felt *need to control* their anxiety-related feelings, dependency wishes, depressive moods, tendencies to succumb, and feelings of hostility toward others.

The correlations between *AL* and the data from both the questionnaire and self-ratings are indicated in Table I. The first part of the table depicts the results for the anxiety-related characteristics, the next section shows the findings for the hostility-related

characteristics, the next section shows the relationship between *AL* and those characteristics believed to reflect both anxiety and hostility. With the exception of general shyness, all anxiety-related characteristics were found to correlate significantly with *AL*. Rorschach *AL* similarly correlated with all those characteristics presumably reflecting both anxiety and hostility. In line with Campbell and Fiske's (1959) notion of multitrait-multimethod approach to validation (i.e. a test should not only correlate with those traits it purports to measure, but should fail to correlate with characteristics it does *not* purport to measure), none of the correlations with the hostility-related characteristics proved to be significant.

There is one further finding in support of the scoring system. In light of the high correlations with self-report measures, it might be argued that despite the validity of the Rorschach as a measure of anxiety, these self-administered techniques are the more efficient and economical measures to use. After all, why should one bother to administer and score a Rorschach if the subject himself is willing to give you the information upon request? However, if one is willing to accept detailed interviews with 20 of these same subjects as an appropriate criterion, then the Rorschach turns out to be a better estimate of anxiety than do the self-report measures (Elizur, 1949). The correlation between *AL* and the interview ratings was found to be .71 ($p < .01$), while the respective self-rating and questionnaire correlations of .36 and .38 failed to reach statistical significance.

Relation to other anxiety measures. A number of attempts have been made to relate Rorschach *AL* with other measures of anxiety. The most frequent attempt by far has been the study of the relationship between *AL* and the Taylor Manifest Anxiety Scale (Forsyth, 1959; Goodstein, 1954; Goodstein and Goldberger,

TABLE I — Correlations Between *AL* and Various Personality Characteristics of 30 Normal Volunteers as Determined by Questionnaires and Self-Ratings (after Elizur, 1949)

| Anxiety Characteristics | Correlation with <i>AL</i> |
|---|----------------------------|
| Questionnaire on Anxiety | |
| Fears and phobias | .58** |
| Lack of self-confidence | .39* |
| Both items combined | .61** |
| Self-Ratings on Control of Anxiety | |
| Fear | .39* |
| Worry | .42* |
| General shyness | .17 |
| Sexual shyness | .46** |
| Feelings of inferiority | .52** |
| All items combined | .52** |
| Questionnaire on Dependency | .57** |
| Self-Ratings on Control of Dependency Wishes | .73** |
| Hostility Characteristics | |
| Questionnaire on Hostility | |
| Self blame | .19 |
| Subject regarded as good natured | — .29 |
| Subject was a "goody-goody" child | — .06 |
| Subject believes that people are hostile | .22 |
| Subject believes that people are selfish | .06 |
| All items combined | — .02 |
| Self-Ratings on Control of Hostility Toward Others | |
| Friends | .18 |
| Members of the family | .03 |
| Minority groups | .15 |
| All items combined | .16 |
| Questionnaire on Submissiveness | .33 |
| Self-Ratings on Control of Tendency to Succumb | .05 |
| Questionnaire on Aloofness | .31 |
| Characteristics Reflecting Both Anxiety and Hostility | |
| Questionnaire on Ideas of Reference | .50** |
| Questionnaire on Depression | .54** |
| Self-Rating on Control of Depressive Moods | .50** |

**Significant at the .01 level.

*Significant at the .05 level.

1955; Kates and Schwartz, 1958; Mogar, 1962; Westrope, 1953). Other anxiety measures to which *AL* has been related have been based on other MMPI scores (Forsyth, 1959; Zimet and Brackbill, 1956), the multiple-choice TAT (Goodstein, 1954), and the Draw-A-Person (Mogar, 1962).

Among psychiatric patients, Goodstein and Goldberger (1955) found that in comparison to 16 subjects who achieved a low score on the Taylor Manifest Anxiety Scale (MAS), 16 high scorers obtained a higher *AL*% ($p < .04$ with a one-tailed test); the two groups did not differ in total R.

On the other hand, Mogar (1962), who used 123 patients at all MAS levels, found a nonsignificant correlation of .07 with *AL*%. For college students, the findings are somewhat conflicting, though largely negative. Goodstein (1954) obtained a correlation of .38 ($p < .01$) between *AL* and MAS for a group of 57 college students; even with total R partialled out, the r remained significant ($r = .36$, $p < .01$). Westrope (1953), who used 24 high and 24 low MAS subjects, found a significant difference in the predicted direction until she partialled out total R; with the control for

R, the difference could only be interpreted as a chance fluctuation. Other studies (Forsyth, 1959; Kates and Schwartz, 1958) similarly failed to obtain any relationship between *AL* and MAS.

On theoretical grounds, one cannot find any good reason why *AL* and MAS should not be related. Sarason (1960) has pointed out that the type of "anxiety" which the MAS purports to measure refers to neurotic tendencies, general maladjustment, and self-dissatisfaction—which is quite similar to the definition of anxiety we have presented in connection with Rorschach *AL*. One may argue, however, that what is revealed by the MAS are these obvious and clear-cut manifestations of anxiety which the *S* is willing to admit upon direct questioning. The anxiety being measured by the Rorschach, on the other hand, although within the *S*'s conscious awareness, is manifested indirectly and more subtly, and is not as easily confounded by conscious control and social desirability factors. This interpretation is admittedly hypothetical, but one which is open to empirical verification.

Zimet and Brackbill (1956) correlated *AL* with estimates of anxiety obtained from the MMPI. They found that for a group of 97 psychiatric patients, the relationship between *AL* and both Welsh's Anxiety Index and Pt (uncorrected for K) was low but significant (r of .25 and .21, respectively). Within a smaller group of normal *S*s ($N=30$), however, Forsyth (1959) failed to obtain any relationship to Welsh's A scale on the MMPI.

Using a multiple-choice TAT with anxiety, hostility, achievement, and blandness as the four alternatives, Goodstein (1954) found no relationship to the *AL* scores achieved by a group of college students.

The only attempt to relate Rorschach *AL* to a measure of anxiety obtained from another projective test

(a multiple-choice TAT would not really qualify as being a projective method in the usual sense) has been Mogar's (1962) study with the Draw-A-Person (DAP). Mogar employed the 12 reliably-scored DAP indices of anxiety formulated by Hoyt and Baron (1959) and related each index to the *AL* scores of 123 psychiatric patients. Of the point biserial correlations obtained for the 12 dichotomous DAP indices, three were significant at the .01 level ($r = -.31$ for reinforcement, $r = .26$ for smallness of size, and $r = .24$ for overestimation of head size relative to figure), one at the .05 level ($r = .18$ for omissions), and one at the .10 level ($r = .14$ for hair shading). Rorschach *AL* did not relate to the DAP indices of placement, type of line (faint), shading, erasing, size of head, body area out of proportion, and size 1:2.

With the exception of anxiety estimated from the DAP, measures of anxiety obtained from the MAS, MMPI, and multiple-choice TAT do not seem to be related to Rorschach *AL*. As these paper-and-pencil measures of anxiety are probably more susceptible to faking and social desirability influences, "set" studies with the Rorschach — that is, effects of conscious dissimulation on obtained *AL* — are needed to determine whether or not these failures to obtain consistencies between measures is in fact a function of the *S*'s conscious control. The relative absence of attempts to relate Rorschach *AL* to other projective measures of anxiety (e.g. TAT) is somewhat surprising, and studies of this type are clearly needed in order to establish the trait validity of the Elizur anxiety scoring system.

Relation to nonanxiety measures. The only two nonanxiety measures to which *AL* has been related have been Rorschach hostility level and I.Q.

In evaluating the empirical relationship between *AL* and level of hostility (Cummings, 1954; Elizur, 1949;

Goodstein, 1954; Sanders and Cleveland, 1953), it is necessary to consider certain basic theoretical points. Although certain people are undoubtedly made anxious by their hostile impulses, others are not (cf. Rosenwald, 1961). Conversely, it is possible that one may have anxiety-producing conflicts which have little to do with hostility. For someone who is *extremely* anxious, however, there is a greater probability that some hostility-related conflicts may be involved. Similarly, it is likely that a very high level of hostility will be conflictful for an individual living in our society. The obtained empirical relationship between anxiety and hostility, consequently, should depend greatly on the size and heterogeneity of the particular sample.

The findings of studies relating Rorschach *AL* and Rorschach Hostility Level (*HL*) have been found to differ, depending upon the composition of the sample. For a group of 270 college students who volunteered for testing, Sanders and Cleveland (1953) found a .52 correlation between *AL* and Rorschach *HL*. Although Elizur (1949) failed to obtain significant correlations between *AL* and *HL* within groups of normal volunteers, neurotics, and matched controls, the correlation for the three groups combined reached a significant value of .27 ($p < .05$). For a group of 70 nailbiting children (Cummings, 1954) and 57 college students (Goodstein, 1954), the correlations were virtually zero ($r = .04$ and $.07$, respectively).

No relationship was found between I.Q. and *AL* within a sample of 22 neurotics and 22 normals (Elizur, 1949). Unfortunately, the size and homogeneity of these two groups do not provide too fair a test of the correlation between *AL* and I.Q.

SUMMARY AND CONCLUSIONS

The concept of anxiety, as it is reflected in Elizur's anxiety scoring of the Rorschach, refers to an experienced, more or less long-term person-

ality characteristic of an individual, rather than a relatively transitory reaction to a stressful situation. Further, our discussion of the construct has referred to only the degree or level of anxiety, and not the way in which it is expressed or reduced; to assess how an individual will cope with his anxiety, information regarding his defensive style is needed.

The general format of the Elizur scoring for anxiety level (*AL*) is fairly straight-forward. Only the content of the response is used, regardless of card or location. The scoring criteria, which are easily learned and reliably applied, are based on the degree or obviousness of the anxiety revealed in the response. Because *AL* has been found to correlate with *R* — the longer the protocol, the higher the *AL* — the score used to summarize a protocol should more appropriately be expressed as a proportion to total *R* (i.e. *AL/R*).

Inasmuch as the type of anxiety which the Elizur scoring purports to measure is more of a relatively stable personality trait, some indication of the test-retest reliability of *AL* is quite in order. Unfortunately, no real good assessment of the stability of *AL* over time has been made as yet. Although the stability of *AL* remains an open question, it might be noted here that a number of experimental manipulations (e.g. self-esteem "stress") have failed to bring about any change in *AL*.

A good deal of research related to the validity of the scoring system has been carried out. Possibly because the scoring of a record for *AL* can be accomplished quite easily, the hypotheses in some of the construct validity research are not as clearly relevant to the concept of anxiety as they might be. For most of those studies in which the test of validity seems appropriate, however, the findings have shown to be favorable. Thus, Rorschach *AL* has been found to be positively related to ratings of anxiety (based on inter-

views or therapy sessions), nailbiting in children, and teeth-grinding in adults. *AL* scores have been noted to be high in the case of neurotics, adolescent delinquents, coronary patients, and psychiatric patients who present diagnostic problems. Further, in contrast to nonremitting schizophrenics, the admission *AL* scores of remitting schizophrenics have been found to be greater. Rorschach *AL*, on the other hand, has shown little or no relationship to frequency of daydreaming, academic probation, or differential diagnosis among psychotics, neurotics, and character disorders. In addition, the evidence has been unfavorable for the prognostic use of *AL* as an indicator of success in therapy for college students, or recovery from illness for tuberculosis patients.

Anxiety level has correlated well with normal Ss' self-ratings of characteristics believed to be related to anxiety, but not those characteristics reflecting only hostility. In addition, using an interviewer's estimate of anxiety as the criterion measure, *AL* proved to be a better measure than did self-ratings. The existing evidence on the relationship between *AL* and Rorschach hostility level is not clear-cut, with much depending on the heterogeneity of the group on which the test has been made. The only test of the relationship between *AL* and anxiety estimates from other projective tests has been carried out with the Draw-A-Person; the results of this study were found to be favorable. Further studies relating Rorschach *AL* to various other projective measures are needed. The attempts to relate *AL* to a paper-and-pencil measure of anxiety, such as the Taylor Manifest Anxiety Scale, and to a multiple-choice form of the TAT, indicate that these other instruments are not measuring the same thing. One may assume that these discrepant findings are due to the greater "fakability" of the paper-and-pencil measures, a hypothesis which can be tested by comparing the effect of instructional set

(to fake "good" or "bad") on Rorschach *AL* relative to these other anxiety measures.

In general, the value of the Rorschach as a research measure of anxiety is greater than one might expect. Like the MMPI, it becomes a particularly attractive instrument, in that there are a large number of rescorable protocols which have been obtained in conjunction with other research projects directly, or indirectly related to the study of anxiety. In this sense, the value of the Rorschach in the assessment of anxiety may be seen to lie in its research rather than its clinical application.

REFERENCES

- American Psychological Association. *Technical recommendations for psychological tests and diagnostic techniques*. Washington, D. C.: APA, 1954.
- Armand, Sara H. A system for deriving quantitative Rorschach measures of certain psychological variables for group comparisons. *J. proj. Tech.* 1959, 23, 403-411.
- Campbell, D. T. Recommendations for APA test standards regarding construct, trait, or discriminant validity. *Amer. Psychologist*, 1960, 15, 546-553.
- Campbell, D. T., & Fiske, D. W. Convergent and discriminant validation by the multi-trait-multimethod matrix. *Psychol. Bull.*, 1959, 56, 81-105.
- Cleveland, S. E., & Johnson, D. L. Personality patterns in young males with coronary disease. *Psychosom. Med.*, 1962, 24, 600-610.
- Cohen, D. Rorschach scores, prognosis, and course of illness in pulmonary tuberculosis. *J. consult. Psychol.*, 1954, 18, 405-408.
- Cummings, C. P. The role of various psychological variables in children's nail-biting behavior. Unpublished doctoral dissertation, Penn. State Univer., 1954.
- DeVos, G. A. A quantitative approach to affective symbolism in Rorschach responses. *J. proj. Tech.*, 1952, 16, 133-150.
- Elizur, A. Content analysis of the Rorschach with regard to anxiety and hostility. *Rorschach Res. Exc. & J. proj. Tech.*, 1949, 13, 247-284.
- Epstein, S., Nelson, Jane V., & Tanofsky, R. Responses to inkblots as measures of individual differences. *J. consult. Psychol.*, 1957, 21, 211-215.
- Eysenck, H. J. The concept of statistical significance and the controversy about one-tailed tests. *Psychol. Rev.*, 1960, 67, 269-271.

- Forsyth, R. P. The influences of color, shading and Welsh anxiety level on Elizur Rorschach content test analyses of anxiety and hostility. *J. proj. Tech.*, 1959, 23, 207-213.
- Freud, S. *The problem of anxiety*. New York: Norton, 1936.
- Gallagher, J. J. Test indicators for therapy prognosis. *J. consult. Psychol.*, 1954, 18, 409-413.
- Goldfried, M. R. One-tailed tests and "unexpected results." *Psychol. Rev.*, 1959, 66, 79-80.
- Goldfried, M. R. A suggested approach to the evaluation of projective techniques. *Psychol. Rep.*, 1966, 18, 111-114. (a).
- Goldfried, M. R. On the diagnosis of homosexuality from the Rorschach. *J. consult. Psychol.*, 1966, 30, in press. (b).
- Goodstein, L. D. Interrelationships among several measures of anxiety and hostility. *J. consult. Psychol.*, 1954, 18, 35-39.
- Goodstein, L. D., & Goldberger, L. Manifest anxiety and Rorschach performance in a chronic patient population. *J. consult. Psychol.*, 1955, 19, 339-344.
- Gorlow, L., Zimet, C. N., & Fine, H. J. The validity of anxiety and hostility Rorschach content scores among adolescents. *J. consult. Psychol.*, 1952, 16, 73-75.
- Grauer, D. Prognosis in paranoid schizophrenia on the basis of the Rorschach. *J. consult. Psychol.*, 1953, 17, 199-205.
- Hammond, K. R. Representative vs. systematic design in clinical psychology. *Psychol. Bull.*, 1954, 51, 150-159.
- Hoyt, T. F., & Baron, M. R. Anxiety indices in same-sex drawings of psychiatric patients with high and low MAS scores. *J. consult. Psychol.*, 1959, 23, 448-452.
- Kates, S. L., & Schwartz, F. Stress, anxiety and response complexity on the Rorschach test. *J. proj. Tech.*, 1958, 22, 64-69.
- Lebo, D., Toal, R., & Brick, H. Rorschach performance in the amelioration and continuation of observable anxiety. *J. gen. Psychol.*, 1960, 63, 75-80.
- Lit, J. Formal and content factors of projective tests in relation to academic achievement. Unpublished doctoral dissertation, Temple Univ., 1956.
- Lucas, Winifred B. The effects of frustration on the Rorschach responses of nine year old children. *J. proj. Tech.*, 1961, 25, 199-204.
- Mogar, R. E. Anxiety indices in human figure drawings: a replication and extension. *J. consult. Psychol.*, 1962, 26, 108.
- Page, H. A. Studies in fantasy — daydreaming frequency and Rorschach scoring categories. *J. consult. Psychol.*, 1957, 21, 111-114.
- Rosenwald, G. C. The assessment of anxiety in psychological experimentation. *J. abnorm. soc. Psychol.*, 1961, 62, 666-673.
- Sanders, R., & Cleveland, S. E. The relationship between certain examiner personality variables and subjects' Rorschach scores. *J. proj. Tech.*, 1953, 17, 34-50.
- Sarason, I. G. Empirical findings and theoretical problems in the use of anxiety scales. *Psychol. Bull.*, 1960, 57, 403-415.
- Stewart, Barbara M. A study of the relationship between clinical manifestations of neurotic anxiety and Rorschach test performance. Unpublished doctoral dissertation, Univ. So. California, 1950.
- Stotsky, B. A. A comparison of remitting and nonremitting schizophrenics on psychological tests. *J. abnorm. soc. Psychol.*, 1952, 47, 489-496.
- Ullmann, L. P., & Hunrichs, W. A. The role of anxiety in psychodiagnosis: replication and extension. *J. clin. Psychol.*, 1958, 14, 276-279.
- Vernallis, F. F. Teeth-grinding: some relationships to anxiety, hostility, and hyperactivity. *J. clin. Psychol.*, 1955, 11, 389-391.
- Westrope, Martha R. Relations among Rorschach indices, manifest anxiety, and performance under stress. *J. abnorm. soc. Psychol.*, 1953, 48, 515-524.
- Zimet, C. N., & Brackbill, G. A. The role of anxiety in psychodiagnosis. *J. clin. Psychol.*, 1956, 12, 173-177.

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Received December 30, 1965

The Identification of Caution, A Correlate of Achievement Functioning

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Summary: A construct of "caution" was posited on the basis of differences in performance of good and poor school achievers on ten variables from several devices. These differences showed the good achievers to be more careful and deliberate in cognitive functioning than the poor achievers. Clinical ratings of caution also differentiated between the two groups in the same direction.

A matrix of rank order correlations of ratings based on the ten scores and three clinical ratings yielded 30 significant correlations. The variable most often correlated with other variables was reaction time to the Rorschach. Long reaction time was positively correlated with few Rorschach responses, long response time on the Rorschach, few words to both Rorschach and Uses of Objects, few uses for objects and frequent use of the neutral position on the Semantic Differential, as well as with high clinical ratings on caution based on Rorschach and Story Telling protocols. Clinicians may find it useful to give greater consideration to reaction time as a measure of caution.

In an exploratory study of good and poor school achievers from a deprived environment (Davidson, Greenberg, Gerver, 1962), it was observed that the good achievers, to a greater extent than the poor achievers, exhibited behaviors which were attributed to a trait identified as "caution." This trait may well be one of the most critical attributes for academic success, although it has received little attention in this connection. Caution, however, has been studied in relation to a number of personality characteristics, such as level of aspiration (Moss, 1961) and intolerance of ambiguity (Messick and Hills, 1960). In the latter study, Messick pointed out that Murray in his comprehensive analysis of psychological characteristics had specified a "deliberation-impulsion" dimension in defining the behavioral expression of caution.

It is the purpose of this paper to ascertain whether "caution" can be considered a consistent, useful construct, measurable through available psychological techniques. The trait of "caution" as used in this study is defined as the tendency to be careful, prudent and deliberate, particularly with reference to cognitive behavior. (In the affective sphere, psychologists have referred to a similar character-

istic as "control" or the ability to curb or delay the expression of impulses.) After outlining the background material that led to interest in this variable, a correlation matrix is presented to demonstrate the relationships among the scores presumed to measure caution.

A trait of caution was originally hypothesized from differences in test scores of 10 good and 10 poor achieving children in the fourth grade on several projective and semi-projective instruments. The following differences were noted for ten variables. To the Rorschach, the good achievers on the average gave fewer responses, showed both longer reaction and response time, used fewer words and had higher F% and A%. To a Story Telling task (four pictures), they gave stories containing fewer words; they also used fewer words in responding to a Uses of Objects test (three objects) and gave fewer uses. On a Semantic Differential instrument, (13 concepts; 8 scales), the good achievers selected the neutral position on a three-point rating scale more frequently than the poor achievers. All of this evidence was interpreted to mean that the good group possessed, to a greater degree than the poor group, a trait of caution in that they delayed and inhibited

both the number and range of their responses.

In order to supplement and validate the discrete objective scores, presumed to measure the hypothesized construct of caution, clinical judgments based on the Rorschach and Story Telling tasks were obtained. An experienced clinician¹ was asked to rank the group of 20 children on caution as defined above, using three aspects of the projective material: (1) the Rorschach scores; (2) the Rorschach protocol; and (3) the Story Telling protocols. These evaluations were made on each instrument independently. Thus each child received three ranks. For each evaluation, a rank of "1" was assigned to the child thought to be the most cautious and a rank of "20" to the one thought to be least cautious. In ranking the 20 children, the clinician did not know the achievement level of the children nor the ten criterion scores from which the construct had been inferred in the original study. The rankings differentiated between the two groups in the expected direction, the good achievers being ranked more cautious than the poor group.

To pursue relationships among the several measures used, rank order correlations were computed. If there is a consistent behavioral dimension of cautiousness, one would expect these measures to be positively related. The correlations should also indicate which individual measures would be most valuable as a measure of caution, as indicated by the generality and magnitude of their relationships to other measures.

The matrix of rank order correlations was based on ranks derived from the ten initial scores and the three clinical judgments. The empirical findings provided the basis for predicting the directions of the correlations. A rank of "1" was assigned to the score hypothesized to reveal the

highest level of caution so that, if the prediction held, all correlations would be positive. Ranks of "1" were assigned as follows:

1. fewest Rorschach responses
2. longest Rorschach reaction time
3. longest Rorschach response time
4. highest F%
5. highest A%
6. fewest words on Rorschach
7. fewest words on Story Telling
8. fewest words on Uses of Objects
9. fewest uses on Uses of Objects
10. largest number of neutral responses on Semantic Differential
11. highest rank on caution based on Rorschach scores
12. highest rank on caution based on Rorschach protocol
13. highest rank on caution based on Story Telling protocol

The matrix of resulting correlations is given in Table I along with the level of significance for one-tailed tests. Of the 78 correlations reported, 16 were significant beyond the .01 level and 14 between .01 and .05. The 30 significant correlations obtained far exceed the number that would be expected by chance (i.e., four at the .05 level) and all are positive as predicted. Examination of the matrix reveals that of the 13 measures considered, reaction time on the Rorschach (variable 2) was most often related to the other variables. Specifically, long reaction time on the Rorschach was associated with few Rorschach responses, long Rorschach response time, few words on both Rorschach and Uses of Objects, few uses for Objects and frequent use of the neutral position on the Semantic Differential. Long reaction time was also correlated with high level of caution based on the clinician's rankings of the Rorschach and Story Telling protocols. Thus, it seems reasonable to consider delay in responding as a measure of caution, probably the most direct measure in this study. It would be desirable to test this finding using reaction times to other instruments.

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TABLE I — Matrix of Rank Order Correlations of "Caution" Variables (N=20)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----|-------|-------|------|-------|------|-------|-------|-------|-------|------|------|-----|
| 1* | — | | | | | | | | | | | |
| 2 | .66** | — | | | | | | | | | | |
| 3 | .56** | .58** | — | | | | | | | | | |
| 4 | -.12 | .07 | -.10 | — | | | | | | | | |
| 5 | .34 | .35 | -.03 | .23 | — | | | | | | | |
| 6 | .69** | .50* | -.01 | .37 | .48* | — | | | | | | |
| 7 | .05 | .36 | .10 | .44* | .17 | .22 | — | | | | | |
| 8 | .45* | .59** | .29 | .28 | .20 | .29 | .57** | — | | | | |
| 9 | .34 | .41* | .44* | .24 | .27 | .20 | .62** | .86** | — | | | |
| 10 | .27 | .43* | .15 | .15 | .35 | .04 | .20 | .31 | .21 | — | | |
| 11 | .12 | .14 | -.32 | .75** | .48* | .61** | .46* | .20 | .17 | .25 | — | |
| 12 | .47* | .65** | .08 | .45* | .13 | .60** | .20 | .39* | .35 | -.02 | .40* | — |
| 13 | .57** | .70** | .35 | .17 | .49* | .36 | .53** | .75** | .66** | .28 | .14 | .37 |

Note: Decimals have been omitted.

*Significant at .05 level.

**Significant at .01 level.

*Names of Variables.

1. number of Rorschach responses
2. average Rorschach reaction time
3. average Rorschach response time
4. percentage of Rorschach F responses
5. percentage of Rorschach A responses
6. number of words on Rorschach
7. number of words on Story Telling
8. number of words on Uses of Objects

9. number of uses on Uses of Objects
10. number of neutral responses on Semantic Differential
11. clinical rating based on Rorschach scores
12. clinical rating based on Rorschach protocol
13. clinical rating based on Story Telling protocol

The measure that showed the second highest frequency of significant correlations with other measures was number of responses on the Rorschach (variable 1). A small number of responses was related to the same scores as was long reaction time (variable 2) with the exception of number of uses to Objects and Semantic Differential. The several scores for number of words used (variables 6, 7, 8) were each significantly correlated with several other variables, including Rorschach reaction time and clinical ratings.

The few significant correlations for the Rorschach F% and A% (variables 4, 5) were observed chiefly in relation to the clinical ratings, as would be expected. Average time per response on the Rorschach was related to reaction time and to number of responses on that instrument as well as to number of uses given for objects.

The variable that showed the least relationship to the others was the use of the neutral position on the Semantic Differential. It should be noted that this was a group paper and pencil test quite different from

the other techniques; also, it involved more conscious awareness of the implications in that the children were required to make evaluative judgments about concepts such as "Mother" and "Father." Nevertheless, frequent use of the neutral position here was significantly correlated with long reaction time on the Rorschach, the one variable already mentioned as probably being the most direct evidence of caution.

There were several significant relationships between the two Rorschach clinical ratings (variables 11, 12) and objective scores from the Rorschach (variables 1, 2, 4, 5, 6), as would be expected, since the two ratings were based on the Rorschach material. However, there were also correlations between the clinical ratings on Story Telling (variable 13) and some Rorschach scores (variables 1, 2, 5), as well as interrelationships of the Rorschach and Story Telling ratings with Uses of Objects (variables 8, 9). These correlations may be viewed as providing some validation for a construct of caution as inferred from the objective scores.

To sum up, positive relationships were observed among the tendencies to take a long time before responding, to give a small number of responses and to limit the number of words used in responding. Since these relatively objective, quantitative scores were also related to clinical assessments of cautiousness, there seems to be some basis for positing a construct of caution.² The finding that reaction time to the Rorschach was the variable most often related to the other measures is consonant with the work of Kagan and others (1963) who have demonstrated positive correlations between reaction time and behaviors deemed to stem from a "reflective" (possibly cautious) approach as opposed to an "impulsive" approach.

Clinicians may find it useful to give

²It should be remembered that the present findings are based on a small group of subjects and but one clinician and therefore can only be considered suggestive. A larger study, part of which replicates these comparisons, is now in progress: "Traits of Successful School Achievers from a Deprived Background", Helen H. Davidson and Judith W. Greenberg, U.S. Office of Education, Cooperative Research Program, Project #2805.

greater consideration to reaction time as a measure of caution. It would also seem worthwhile to continue to study caution as a factor in the cognitive domain, its relationship to affective control, and its relevance for successful achievement in school.

REFERENCES

- Davidson, Helen H., Greenberg, Judith W., & Gerver, Joan M. Characteristics of successful school achievers from a severely deprived background. 1962, Mimeographed, Pp. 41.
- Kagan, J., Moss, H. A., & Sigel, I. E. Psychological significance of styles of conceptualization. In J. C. Wright & J. Kagan, *Basic Cognitive Processes*. Monographs of the Society for Research in Child Development, 1963, Pp. 73-112.
- Messick, S. & Hills, J. R. Objective measurement of personality: cautiousness and intolerance of ambiguity. *Educ. psychol. Measmt.*, 1960, 20, 685-698.
- Moss, H. A. The influence of personality and situational cautiousness on conceptual behavior. *J. abnorm. & soc. Psychol.*, 1961, 63, 629-635.
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Hypnotic Validation of Two Hand Test Scoring Categories

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Summary: When emotions of aggression and affection were hypnotically induced in seven college students, they produced corresponding increases on the Aggression and Affection scores of the Hand Test.

It has been demonstrated that, when the Hand Test was administered to a single subject under five hypnotically induced emotional states, qualitative and quantitative evaluations of the protocols tended to corroborate the validity of the individual scoring categories (Hodge and Wagner, 1964). However, these results were limited by the fact that only one case, a psychiatric patient, was involved in the study and the findings could not be statistically analyzed. The present study was designed to remedy this deficiency by employing a group of normal subjects and by limiting the number of hypnotic states to two operationally defined emotional conditions, affection and aggression.

PROCEDURE

Twenty-three college students volunteered to participate in this study. Seven Ss (three males and four females) were selected on the basis of meeting the following acceptance criteria. (1) ability to enter a hypnotic trance; (2) response to post-hypnotic suggestion to reenter the trance; (3) ability to demonstrate post-hypnotic amnesia.

Each subject was administered the test in a normal waking state. As an additional control, the S was hypnotized, amnesia for the first testing experience was suggested, and the test was readministered in a trance state. Next, the S was again instructed to forget that the Hand Test had ever been administered and the stimulus for the induction of an affectionate state was presented. This procedure was followed for the induction of an aggressive state. The desired emotions

were induced by reading the following two passages based on the recommendations of Levitt, Breeijen, and Persky (1960):

Affectionate State: "I want you to think of someone whom you feel very affectionate toward... Someone you like very much... This thought is now going to turn into a feeling, a feeling of affection, of love, of tender feelings, of friendliness, of good will, of warm regard, of fondness, of tender attachment... This affectionate feeling is growing stronger and stronger within you... It's getting so strong it is almost overwhelming... I am going to count to ten, and as I count the feeling will grow in strength so that when I reach the count of ten you will feel as affectionate as you have ever felt in your life."

Aggressive State: "I want you to think of someone you dislike. They have unjustly accused you of something, and no one is letting you tell the truth... no one will give you the chance to tell what really happened... But you want to straighten things out... It makes you very angry... You want to push forward your ideas regardless of opposition... You demand attention... You would like to punish this person, to hurt him in some way — physically, verbally, or symbolically — You're getting very angry... The feeling is growing stronger and stronger within you... It's getting so strong it is almost overwhelming... I am going to count to ten, and as I count the feeling will grow in strength so that when I reach the count of ten you will feel as angry and aggressive as you have ever felt in your life."

It was hypothesized that, when an affectionate state was hypnotically induced, the subjects would demonstrate greater affection (AFF) scores on the Hand Test as compared to a neutral control state; and that, likewise, when an aggressive state was induced, the subjects would demon-

TABLE I—Number of Affection and Aggression Responses to the Hand Test for seven college students under Control Conditions (C) and Hypnotically Induced Emotional States (E) as compared by the Wilcoxon Matched-Pairs Signed-Ranks Test (one-tailed).

| Subject | Affection Responses | | | | Aggression Responses | | | |
|---------|---------------------|---|-----|-----------|----------------------|----|------|-----------|
| | C | E | d | Rank of d | C | E | d | Rank of d |
| a | 1.5 | 2 | .5 | 2 | 2.0 | 4 | 2.0 | 1 |
| b | 2.5 | 2 | -.5 | -2 | 4.0 | 19 | 15.0 | 6 |
| c | 0.5 | 5 | 4.5 | 6 | 0.5 | 17 | 16.5 | 7 |
| d | 1.0 | 4 | 3.0 | 5 | 1.5 | 5 | 3.5 | 3 |
| e | 2.5 | 5 | 2.5 | 4 | 1.0 | 7 | 6.0 | 5 |
| f | 1.5 | 2 | .5 | 2 | 0.5 | 3 | 2.5 | 2 |
| g | 2.0 | 8 | 6.0 | 7 | 8.0 | 12 | 4.0 | 4 |
| | T=2 | | | | T=0 | | | |
| | p<.025 | | | | p<.01 | | | |

strate greater aggressive (AGG) scores when compared to the control state.

RESULTS AND DISCUSSION

Since there were no significant differences in the number of affection (AFF) and aggression (AGG) responses when the test was administered in the un hypnotized control state and when it was administered in the hypnotized control state, the responses were combined, averaged, and treated as a single standard for comparison with the two experimental conditions.

The difference between the number of affection (AFF) responses under Control (C) and Hypnotized (E) conditions for the seven subjects used in this study was analyzed by the Wilcoxon Matched-Pairs Signed-Ranks Test and the difference between the number of aggression (AGG) responses under Control (C) and Hypnotized (E) conditions was similarly analyzed. One-tailed tests were used because the experimental hypothesis predicted the direction of the expected changes. Both of the differences were found to be significant. The results of these comparisons are seen in Table I.

The significant increases in Affection and Aggression responses to the Hand Test in the expected direction for the corresponding hypnotically induced emotional state demonstrate construct validity for the Hand Test and support the previous findings with a single, hypnotized psychiatric patient.

It was interesting to note that, on the whole, the number of affection or aggression responses given when the opposite emotional response was produced was less than under the control condition. As might be expected, aggression and affection seemed to be inimical emotions.

REFERENCES

- Hodge, J. R. and Wagner, E. E. The validity of hypnotically induced emotional states. *Amer. J. clin. Hypnosis*, 1964, 7, 37-41.
- Levitt, E. E., Breeijen, Arie den, and Persky, H. The induction of clinical anxiety by means of a standardized hypnotic technique. *Amer. J. clin. Hypnosis*, 1960, 2, 206-214.

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Received November 12, 1965

Revision received April 25, 1966

Stereotypical M-F as Related to two Szondi Test Assumptions

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Summary: To determine whether degree of liking for photographed faces (L-D) is related to tested masculinity-femininity (M-F) of persons portrayed, or whether, instead, L-D is related only to the M-F stimulus values of photographs (stereotypical M-F), 60 photographs of males of known M-F were Q-sorted, in terms of L-D, by 220 Ss. Only one of 220 rs between L-D Q-sorts and "true" M-F was significant at the .01 level, but 46 of 220 rs between L-D Q-sorts and stereotypical M-F were significant at the .01 level. The findings appear to contradict the Szondi Test assumption that "true" personality differences are perceived as a basis for liking or disliking photographed faces.

To determine whether Ss whose L-D Q-sorts are positively related to their M-F Q-sorts can be differentiated in terms of their own M-F scores from Ss for whom no such positive relationship occurs, 36 males and 50 females were asked to make L-D Q-sorts and M-F Q-sorts of the same set of photographs and to take the Terman-Miles Attitude-Interest Analysis Test. Findings supported the hypothesis that personality characteristics of Ss are related to their liking for faces in which such characteristics are perceived.

STUDY I

Problem

Personality diagnosis with the Szondi Test (Szondi, 1952) is based on a number of inadequately tested assumptions (Klopfer & Borstelmann, 1950; Schafer, 1950), among which is the assumption that personality differences are perceivable in photographs of the human face.

In two previous studies (Sappenfield, 1965a, 1965b) it was found that self-report masculinity-femininity (M-F) could not be perceived correctly when Ss were asked to Q-sort, in terms of judged degree of M-F, a set of 60 photographs of males who had been randomly selected to represent a distribution of M-F scores in a larger sample of males. It was also found that, even though self-report M-F could not be perceived correctly, impressive agreement occurred among Ss in their perception of M-F.² These findings were in essential agreement

with those earlier reported by Klopfer and Borstelmann (1950), who demonstrated that the Szondi pictures had "a demonstrable associative valence of the kind described by Szondi, but that this corresponded specifically to his designation of the picture in only one-half of the cases." In other words, their Ss assigned consistent meanings or content values to the individual Szondi pictures, even though these meanings were only partially in agreement with Szondi's diagnostic categorization of the pictures.

The above findings concerning perception of self-report M-F are open to the objection that they might not provide an adequate test of the Szondi assumption, since they were based on instructions to Q-sort in terms of conscious perception of M-F, whereas the Szondi Test procedure calls for choices of liked and disliked pictures, and such choices may conceivably be based on unconscious perception of personality differences and unconscious identification with the persons por-

which was not reflected in self-report scores of the persons photographed, our only criterion of "true" M-F consisted of such self-report scores. Our quotes around "true" will call attention to this limitation in our criterion data.

¹The junior author participated in Study II, through support of an N. S. F. Undergraduate Research Participation Grant (GE-2599). The present report was prepared by the senior author.

²Although it is possible to construe such inter-subject agreement as a demonstration that Ss correctly perceived an aspect of M-F

trayed in the photographs. It could be argued, then, that, in order to test the assumption that personality differences are unconsciously perceivable, Q-sorts should be based on instructions to evaluate photographs in terms of the degree to which they are liked or disliked by the Ss.

Study I, involving Q-sorts on the like-dislike variable, has provided evidence on the question whether personality differences are correctly perceivable as a basis for liking and disliking faces depicted in photographs. More specifically stated, Study I was designed to provide an answer to the following question: When Q-sorts are made in terms of the degree to which photographed faces are liked by the Ss (L-D Q-sorts), will the L-D Q-sort scores of the photographs, for individual Ss, be significantly correlated with the self-report M-F scores ("true" M-F) of the persons depicted in the photographs, or will they, on the other hand, be significantly correlated with the M-F stimulus values of the photographs (stereotypical M-F) rather than with the "true" M-F values?

Method

The preparation of M-F photographs used in the present study was described in more detail in a previous paper (Sappenfield, 1965b).³ From a group of 185 male students who had taken Form A of the Attitude-Interest Analysis Test (Terman & Miles, 1938), 60 individuals were randomly selected to represent the range of M-F scores, according to a Q-sort distribution of 11 categories with frequencies of 1, 2, 4, 7, 10, 12, 10, 7, 4, 2, and 1, respectively. Each category excepting the two extremes, had a range of 4-T-score points, or 0.4 standard deviations, based on the original distribution of 185 scores. "True" M-F scores from 0 to 10 were assigned to individ-

uals scoring within the categories from lowest masculinity to highest masculinity. The 60 males were subsequently photographed under standard conditions. The resulting M-F photographs were used in the Q-sort procedures to be described below.

Ss for Study I consisted of five samples, as follows: (a) the S N group, composed of 18 student nurses at Montana State Hospital; (b) the H S group, composed of 18 male and 20 female high school sophomores; (c) the M-D group, composed of 18 female high school freshmen and 19 mothers of the same high school freshmen; (d) the U-P 1 group, composed of 18 male and 23 female students from a class in introductory psychology; and (e) the U-P 2 group, composed of 36 male and 50 female students from classes in introductory psychology.⁴ A few potential Ss from each of the samples had to be eliminated either because of failure to conform to the required Q-sort distribution or because of recognition of one or more persons portrayed in the M-F photographs.

Ss in each sample were instructed, individually, to Q-sort the 60 M-F photographs in terms of the degree to which they liked the faces portrayed. Instructions required that the Q-sort distribution be identical with the distribution of "true" M-F scores among the 60 individuals who had been photographed.

Results and Discussion

Pearson r 's, for each individual S, were computed between L-D Q-sort scores and the "true" M-F scores of the persons portrayed in the photographs. Summarized findings are presented in Column 3 of Table I. Only one r , out of a total of 220, was significant at or

³The preparation of M-F photographs was supported by a grant (R-509) by the Research Committee, University of Montana. Photographs were prepared, in 1958, by Dr. Odin C. Vick, then a graduate student.

⁴Data for the S N group were collected by staff members of the Psychology Department, Montana State Hospital. Data for the H S, M-D, and U-P 1 groups were collected by Jack J. Stephens, Robert Baldwin, and John M. Shearer, respectively. Their contributions are gratefully acknowledged. The U-P 2 group consisted of Ss tested for Study II, as reported below.

TABLE I—Summary of r 's Between L-D Q-Sorts and "True" M-F, and Between L-D Q-Sorts and M-F Stimulus Values (Stereotypical M-F)

| Group | N | Number of significant r 's ^a | | p (L-D total scores for "M" versus "F" photographs) |
|---------------|-----|---|-------------------------------------|---|
| | | With "true" M-F ^b | With stereotypical M-F ^c | |
| S N (females) | 18 | 0 | 8 | <.005 |
| H S: Males | 18 | 0 | 2 | NS |
| Females | 20 | 1 | 5 | NS |
| M-D: Mothers | 19 | 0 | 4 | <.005 |
| Daughters | 18 | 0 | 0 | NS |
| U-P 1: Males | 18 | 0 | 4 | <.005 |
| Females | 23 | 0 | 7 | <.005 |
| U-P 2: Males | 36 | 0 | 8 | <.005 |
| Females | 50 | 0 | 8 | <.005 |
| Totals | 220 | 1 | 46 | — |

^a Significantly different from 0.00, at or beyond the .01 level.

^b Range — .39 to .31.

^c Range — .31 to .59.

beyond the .01 level; this could be accounted for by chance. The findings clearly imply that relative degree of liking for the photographed faces could not have been based on a tendency of the Ss, even unconsciously, to perceive the "true" M-F of persons portrayed in the photographs.

Although Ss in the first four samples for Study I were not instructed to Q-sort the M-F photographs in terms of perceived degree of M-F, data from such Q-sorts were available from another study (Sappenfield, 1965b) for 48 Ss, on the basis of which it was possible to determine the median M-F Q-sort value (M-F stimulus value) for each of the 60 photographs. The M-F stimulus values used for the U-P 2 group were based on previous M-F Q-sorts by 108 Ss (including, in addition to the original 48 Ss, 35 male and 25 female students from introductory psychology classes). The summarized data for r 's between L-D Q-sort scores and M-F stimulus values of the photographs (stereotypical M-F) are presented in Column 4 of Table I. It will be noted that 46, out of 220 r 's, were significant at or beyond the .01 level. Since none of the 46 significant r 's was negative, it is clear that stereotypical masculinity in males was evaluated positively by both male and female Ss.

If it is assumed that the Terman-

Miles Test provides a valid measure of M-F, the above findings suggest that stereotypical M-F, rather than "true" M-F values of photographs, may affect an S's degree of liking for photographed faces. In more general terms, it appears probable that stereotypically perceived personality differences, rather than "true" personality differences, may function as a determinant of the degree to which photographed faces are liked or disliked. The findings, therefore, appear to contradict one of the assumptions underlying use of the Szondi Test.

The data concerning the number of significant r 's between L-D Q-sort scores and stereotypical M-F (Table I, column 4) suggest that affective judgments of pre-college Ss, as compared with such judgments by older Ss, may be relatively less influenced by stereotypical perception of M-F. The validity of this interpretation is supported by the data of column 5 in Table I, showing that highly significant p values were obtained for all groups who had reached or exceeded college age at the time of testing, but that non-significant p values (higher than .05) were obtained for all pre-college groups. The p values were derived by applying the Wilcoxon matched-pairs signed-ranks test (Siegel, 1956) to paired scores of all Ss in each group. The paired scores con-

sisted of (a) the sum of the L-D Q-sort scores for 15 "M" photographs, and (b) the sum of the L-D Q-sort scores for 15 "F" photographs. "M" photographs were defined as those which had most frequently been placed at the masculine end (above the midpoint) of the Q-sort scale, when Q-sorted in terms of judged degree of M-F by 108 college-age Ss. "F" photographs were defined as those which, by the same 108 Ss, had been most frequently placed at the feminine end of the scale. All of the 30 "M" and "F" photographs had been placed at the M or F end of the scale by over 70 per cent of Ss (significantly different from 50 per cent, beyond the .01 level).

Since the M-F stimulus values of the photographs had been determined on the basis of results for college-age Ss, there appear to be at least four possible interpretations of the finding that affective judgments of pre-college Ss were not significantly related to stereotypical M-F: (a) that pre-college Ss may perceive M-F differently from the way it is perceived by older Ss; (b) that stereotypical M-F may be a function of development and that it was not yet fully "matured" in the younger groups of Ss used in this study; (c) that younger Ss may make their affective judgments less on the basis of perceived M-F than on the basis of some other perceived characteristic; and (d), as suggested by the findings of Study II, to be reported below, the younger Ss may have been relatively less masculine than the older Ss and may therefore have been less likely to identify with photographed faces perceived to be masculine. The data presently available provide no adequate basis for evaluating the relative probabilities of these alternative interpretations.

STUDY II

Problem

Since the findings of Study I suggested that the L-D Q-sorts of some Ss may be based on (possibly unconscious) stereotypical perception of M-F,

it appeared reasonable to use the same set of M-F photographs to test a second assumption of the Szondi Test procedure. As Klopfer and Borstelmann (1950, pp. 172-173) have pointed out, a basic assumption involved in use of the Szondi Test is "that the choices made on the test are determined by the personality characteristics of the subjects taking the test."

It was the hypothesis of Study II that M-F scores on the Attitude-Interest Analysis Test (Terman & Miles, 1938) should differentiate between Ss whose L-D Q-sorts are positively related to their M-F Q-sorts and Ss whose L-D Q-sorts are unrelated or negatively related to their M-F Q-sorts. Should this hypothesis be confirmed, the findings would be a basis for renewed confidence in a procedure similar to that of the Szondi Test. Such findings would also support a more general proposition of psychoanalytic dynamics that liking for another person may be based on perceptual identification of the self and the object.

Method

The M-F photographs described in Study I were also the stimulus materials for Study II. The Ss were 86 introductory psychology students (36 males and 50 females) who volunteered during the Spring and Summer Quarters, 1965, and the Winter Quarter, 1966. Each S made an L-D Q-sort and an M-F Q-sort of the M-F photographs, on separate dates approximately two weeks apart, and, on a third date, took Form A of the Terman-Miles Attitude-Interest Analysis Test. Among the first two groups of volunteers, thirty Ss (13 males and 17 females) made L-D Q-sorts first, and 29 Ss (12 males and 17 females) made M-F Q-sorts first; all Ss in the third group of volunteers made L-D Q-sorts first.⁵ All Ss took the Terman-Miles

⁵ Preliminary analysis of results for the first two volunteer groups had indicated that the order of the two types of Q-sorts was unrelated to any of the variables under investigation.

Test after having completed both Q-sorts. A few potential Ss had to be eliminated because of failure to conform to the Q-sort distribution or failure to participate in all three of the required tasks.

Results and Discussion

The first set of findings of Study II are summarized in Table II. It will be noted (Column 2) that for 12 of the 36 male Ss and for 23 of the 50 female Ss, the r 's between L-D and M-F Q-sorts were significantly positive, but for 24 male Ss and for 27 female Ss, the r 's were non-significant or negative. Results of the Mann-Whitney U Test (last column of Table II) indicate that both the males and the females were significantly differentiated, at or beyond the .01 level, in conformity with the hypothesis; that is, Ss whose liking for male faces was positively related to their perception of masculinity in the faces tended to have more masculine scores than Ss for whom no such positive relationship occurred. However, although the hypothesis was confirmed at a respectable level of confidence, it should be noted (Column 3, Table II) that there was extensive overlap in the M-F scores of the two subgroups of males and the two subgroups of females, and also (Column 4) that 10 of the males and 18 of the females were misclassified in terms of the hypothesis.

An alternative method of examining the data was suggested by the re-

port of an analysis of the Szondi pictures (Borstelmann & Klopfer, 1951) in terms of their affective valences (A V) or affective stimulus values. A V, as applied to Szondi pictures, was operationally defined by Borstelmann and Klopfer (1951) as the median rating each picture received by a large heterogeneous group of Ss, when asked to rate the pictures on a seven-point scale ranging from "strongly like" to "strongly dislike." It was pointed out by Borstelmann and Klopfer (1951) that the A V within sets of Szondi pictures should be equated before it is possible to construe a particular S's choice of a given picture as valid evidence for personality interpretation, rather than merely as evidence that he tends to like or dislike the same pictures that others tend to like or dislike.

In the present study, A V was operationally defined as the median placement of a given photograph on the eleven-point L-D Q-sort scale. A V was determined separately for males and for females (based on L-D Q-sort data for 102 male Ss and for 98 female Ss). The A V values for the 60 photographs were used in scoring keys to determine an "M-like" score for each of the Ss of Study II. The "M-like" score for a given S consisted of the algebraic sum of the deviations of his L-D Q-sort scores from the A V values of the 24 photographs which he had placed at the masculine end of the M-F Q-sort scale (deviation = L-D minus A V) and of the 24 photo-

TABLE II—M-F Scores of Male and Female Groups, Dichotomized by magnitude of r 's between L-D and M-F Q-sorts.

| Group | N | Range | M-F scores ^a Number of Ss misclassified | p (Mann- Whitney U test) |
|-------------------|----|-------------|--|------------------------------------|
| Males: | | | | |
| High ^b | 12 | +51 to +144 | 5 | .0023 |
| Low ^c | 24 | —63 to +132 | 5 | |
| Females: | | | | |
| High ^b | 23 | —97 to +63 | 9 | .0084 |
| Low ^c | 27 | —110 to +13 | 9 | |

^a Scores on Form A, Terman-Miles Attitude-Interest Analysis Test.

^b Significantly positive r 's ($p < .01$).

^c Non-significant or negative r 's; two r 's in each sex group were significantly negative.

TABLE III—M-F Scores of Male and Female Groups, Dichotomized in terms of "M-like" Scores

| Group | N | M-F scores ^a | | p (Mann-Whitney U test) |
|-------------------|----|-------------------------|----------------------------|-------------------------|
| | | Range | Number of Ss misclassified | |
| Males: | | | | |
| High ^b | 19 | +26 to +144 | 5 | |
| Low | 17 | -63 to +132 | 5 | .0048 |
| Females: | | | | |
| High ^c | 25 | -105 to +63 | 9 | |
| Low | 25 | -110 to +13 | 9 | .0375 |

^a Scores on Form A, Terman-Milcs Attitude-Interest Analysis Test.

^b High "M-like" scores were +11 and higher.

^c High "M-like" scores were +19 and higher.

graphs he had placed at the feminine end (deviation = A V minus L-D). The "M-like" score, therefore, represented the degree of an S's tendency to like more than A V the photographs he perceived as M and to like less than A V the photographs he perceived as F.

The relationship between "M-like" scores and Terman-Miles M-F scores are presented, for males and females separately, in Table III. Both sex groups were separated into high and low groups, by dichotomizing them at the median (or as near as possible to the median) of their respective distributions of "M-like" scores. Results of the Mann-Whitney U Test (last column of Table III) indicate that both the males ($p < .01$) and the females ($p < .04$) were significantly differentiated, in conformity with the hypothesis; that is, Ss with high "M-like" scores tended to have higher (more masculine) M-F scores than Ss with low "M-like" scores. Again, although the hypothesis was confirmed, there was extensive overlap (Column 3, Table III) in the M-F scores of the two subgroups of males and the two subgroups of females, and also (Column 4) 10 of 36 males and 18 of 50 females were misclassified in terms of the hypothesis.

The findings of Study II support the general hypothesis that choices of Szondi Test pictures may be based on personality characteristics of the subjects, and that liking for another per-

son may be based on identification of the self with the object. However, even though significant group results were obtained, the fact that many misclassifications of individual Ss occurred suggests that Szondi procedure may have limited value for individual diagnosis. Also, since the M-F Q-sort procedure of Study II involved determining the Ss' own perceptions of M-F, rather than relying on the expectation that correct perception of personality characteristics would occur, as is done in the standard procedure for the Szondi Test, it appears that any Szondi-like procedure of the future is unlikely to promise validity unless the stimulus materials can be shown to yield extremely high agreement among Ss in their perception of some personality characteristic, or unless the Ss, in taking such a test, are asked not only to choose liked or disliked pictures but also to make judgments concerning some personality trait perceived in the pictures.

REFERENCES

- Borstelmann, L. J., & Klopfer, W. G. Does the Szondi test reflect individuality? The affective valences of the Szondi pictures. *J. Pers.*, 1951, 19, 421-439.
- Klopfer, W. G., & Borstelmann, L. J. The associative valences of the Szondi pictures. *J. Pers.*, 1950, 19, 172-188.
- Sappenfield, B. R. Stereotypical perception of masculinity-femininity. *J. Psychol.*, 1965, 61, 177-182. (a)
- Sappenfield, B. R. Test of a Szondi assumption by means of M-F photographs. *J. Pers.*, 1965, 33, 409-417. (b)
- Schafer, R. Review of Deri's *Introduction to*

- the Szondi Test. J. abnorm. soc. Psychol.*, 1950, 45, 184-188.
- Siegel, S. *Nonparametric statistics for the behavioral sciences*. New York: McGraw-Hill, 1956. Pp. 75-83.
- Szondi, L. *Experimental diagnostics of drives*. New York: Grune & Stratton, 1952.
- Terman, L. M., & Miles, Catharine C. *Manual of information and directions for use of the Attitude-Interest Analysis Test*. New York: McGraw-Hill, 1938.
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- Received October 20, 1965
Revision received April 11, 1966

The Imaginary Lovers Delusion: A Diagnostic Case Study

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Summary: A patient who believed that two imposters were posing as her and her ex-fiance was diagnosed as a paranoid schizophrenic with the aid of the Rorschach, DAP and Hand Test. Projective tests not only accurately reflected various elements of the girl's psychopathology but also revealed certain voyeuristic tendencies which appeared to be related to the projection of a double. The delusion was tentatively classified as a variation of Capgras' syndrome.

A rare or exotic psychological abnormality is of interest to the theoretician inasmuch as the singular nature of an aberration may illuminate some difficult problem of nosology and/or psychodynamics. Test data on such cases are especially valuable to the diagnostician, not only because of the opportunity to further scientific knowledge, but also because a unique symptom can be regarded as an independent variable against which test results can be checked, compared and validated. An important idiosyncrasy in the personality should reveal itself in the test protocol and the quality of this manifestation may provide insight into the nature of the test as well as the essence of the disease process.

Recently a patient was encountered with a strange delusional system and a subsequent perusal of the literature showed no exact parallel. This delusion occurred in a 21-year-old, unmarried, white female who had been jilted by a medical student. Following the termination of this romance she found herself being constantly annoyed by various acquaintances who would relate that they had encountered a married couple which, for all intent and purpose (age, name, appearance), coincided with the estranged boy and girl. Dynamically, she appeared to have projected her unfulfilled wish for matrimony into imaginary lovers; but she employed intermediaries (presumably also nonexistent) as her sources of information. The delusion bore some resemblance to *L'illusion des sosies* in which the patient believes that an

impostor has assumed the identity of some familiar person (Capgras and Reboul-Lachaux, 1923), but differed in that (1) the experience was indirect, through friends; (2) one of the impersonators was the subject herself; and (3) there were *two* impostors instead of just one. The delusion had decidedly unique twists and it was felt that an analysis of projective test data given by this young lady would be interesting and informative. There is one instance in the literature where Rorschachs are reported on two cases with Capgras' syndrome (Stern & MacNaughton, 1945), and comparisons between those protocols and the data gathered from the present case study were also undertaken.

CASE HISTORY AND INTERVIEW DATA¹

The girl (CD) came from a wealthy family and was the oldest of five children. Her father was an energetic, successful business executive and a pillar of the community. CD had always fought with her parents and relations with the father were particularly strained. CD attended various schools and colleges, never completing the course work, and usually getting into trouble because of her disrespect for authority. Her short-lived affair with the medical student seemed to have a further unsettling effect on the girl and exacerbated parental friction.

CD readily verbalized her hatred of her parents who, she claimed, did not appreciate her artistic personality. In relating her experiences of repeatedly

¹ Appreciation is expressed to William Holloway, M.D., for supplying the case history information.

meeting people who described a couple masquerading as her and her ex-beau, CD seemed genuinely perplexed and angered by the impersonations but denied that they could have been mere coincidences. She stoutly maintained that the mystery couple

must exist since the girl in the duo invariably possessed the same eye color, hair fashion, first name and other unmistakable personal characteristics.

CD was administered a battery of projective tests including the Ror-

RORSCHACH²

| | | |
|-----------|---|--|
| I. 5" | 1. A butterfly . . . monarch butterfly. (Anything else?) As a whole, or different parts? (anything you wish) So inane . . . Chinese . . . landscape (Q) Mountains, misty waterfall . . . | W F A P Dr cF N |
| II. 19" | 1. Ah . . . pelvis . . . Something to do with menstruation. Something else now? That's all . . . can't think of anything else. | WS { F \pm anat CF sex |
| III. 22" | 1. Gee . . . see some . . . women's legs with heels on . . . very obvious. 2. And rain running down the side of a window. 3. Red looks like a hair ribbon. 4. Red spots on the outside look like birds—ostriches. 5. Head and body of woman . . . and legs coming down in a weird way (Q) Not supposed to be doing anything? Doing the can can. | Do F Hd Dr cmF water D FC app D F A D M H |
| IV. 23" | 1. Oh gee! Spinal column of a fish . . . decayed fish with spinal column showing. Turn it? (Yes). 2. \odot V That way it looks like a bug. Can't think of anything else. | W cF anat. W F \pm A |
| V. 1" | 1. A bug. (Q) Rare kind . . . very scientific name (Q) Flying. 2. \odot V Other way it looks like a scissors. 3. Or . . . cobras rearing up their heads. Oh dear! I don't like it. | W FM A D F imp D FM Ad |
| VI. 8" | 1. Turkey feathers (laughs). 2. Horseshoe crab . . . with spine. 3. Sky scrapers . . . tops of buildings in the city. | D F obj D cF A De F arch |
| VII. 15" | 1. hmmm . . . Plastered wall that's cracked and dried. 2. Parched or cracked ground after an earth quake. 3. Cartoon characters . . . Easter bunny . . . two . . . (Q) Looking at each other . . . "Oh look! . . . another Easter bunny who can be my friend!" | W cF obj W cF N D (FM) A |
| VIII. 20" | 1. Well . . . colors of the rainbows in it . . . Colored animals . . . two bears climbing up a fern tree in the woods . . . and . . . pink bears? . . . hmmm . . . 2. Coral reef on the bottom. These are muskrats . . . beavers on a coral reef. Anything I think? (Yes). 3. Blue things look like satin pillows in a bedroom. | D { FMC A P FC tree D { FM A P CF geol D CcF obj |
| IX. 10" | 1. Things in chemistry . . . bunsen burner . . . (Q) in the middle . . . yeah . . . fire . . . 2. Pink at the bottom looks like premature babies. Before they're born. Could say, well, almost ready to be born . . . fire, flame, blood . . . everything like that . . . process of giving birth. | DS { F obj CcmF fire D { FC embr. CcmF sym |
| X. 24" | 3. Green looks like a relief map with green forests on it. 1. Blue spider looks like . . . coming . . . attacking some little preying mantis . . . green bug. 2. Green in the middle look like caterpillars attacking . . . devouring a leaf. Very hungry. 3. And . . . in middle look like antennas of insect. 4. And . . . something to do with . . . heart . . . aortic valves . . . things going . . . blue . . . heart's not in very good shape . . . needs oxygen . . . and . . . of course . . . red is living cavities . . . skeleton of rib cage. That's it. 5. Look like lobsters. Well, is that enough? | D CcF geog D FMC A P D FM A D F Ad D { FC anat CF anat D F A |

² Scored, with modifications, according to Piotrowski.

SUMMARY

| | | | |
|------|--------|----------|----------------|
| W=6 | M=1 | A=10 | R=30 |
| WS=1 | mF=1 | Ad=1 | P=4 |
| D=18 | FM=6 | H=1 | AIRT=14.5" |
| DS=1 | (FM)=1 | Hd=1 | W:D= 7:18 |
| De=1 | cF=8 | anat=4 | W:M= 7:1 |
| Dr=2 | F=9 | obj=4 | FM:M= 7:1 |
| Ds=1 | F±=2 | N=2 | ΣC:M=9½:1 |
| | FC=4½ | sex=1 | ΣC:Σc=9¼:12 |
| | CF=7 | water=1 | FC:CF:C=4½:7:0 |
| | | app=1 | A°=37 |
| | | imp=1 | F°=37 |
| | | arch=1 | F+°=82 |
| | | tree=1 | |
| | | geol=1 | |
| | | fire=1 | |
| | | embryo=1 | |
| | | sym=1 | |
| | | geog=1 | |

HAND TEST

| | | |
|-----------|--|----------------------------|
| I. 1" | Traffic signal (Anything else?) Waving goodbye (E) Looking at his hand trying to see . . . inspecting their hand . . . "What have we here?" | DIR COM EXH (INTROS) |
| II. 4" | Oh my! Got arthritis . . . What doing? (Yes) (pt. studies the card) . . . Looks . . . a traffic accident (laughs) Pretty mangled. Just . . . nothing worthwhile. | CRIP CRIP (BIZ) |
| III. 5" | Giving an order "You go do that." | DIR |
| IV. 15" | Looks like . . . perhaps . . . knead bread . . . work with dough . . . roll it . . . Perhaps catch a ball . . . playing basketball. | ACT (SEN) ACT |
| V. 5" | Little black marks . . . supposed to be part of it . . . ink marks . . . scribbles . . . looks like he has leprosy. | CRIP (BIZ) |
| VI. 3" | Wow! Somebody is in a street fight. Having a gang fight. Really out to punch somebody in the mouth. Or . . . expresses anger. Khrushchev pounding fist at the U.N. "We'll bury your grandchildren. Ugh! (grimaces) . | AGG AGG (PAR) |
| VII. 19" | Reaching out to open a door. Or to shake a hand . . . not Left hand. Could never be! Doesn't have any character or personality. | ACQ AFF (DEN) |
| VIII. 11" | Someone picking something up . . . a marble. They're writing. | ACT ACT |
| IX. 7" | Bee sting on his thumb. Awfully big! (E) I don't know . . . just . . . walking (Q) Yeah (demonstrates a rather exhibitionistic devil-may-care pose). | CRIP EXH (MOV) |
| X. 3" | Yeah, playing the organ. Or playing the piano. Some such position. | EXH EXH |

SUMMARY

| | | | | |
|---------|--------|--------|---------|-------------|
| AFF=1 | ACQ=1 | TEN=0 | DES=0 | R=19 |
| DEP=0 | ACT=4 | CRIP=4 | FAIL=0 | AIRT=7.3 |
| COM=1 | PAS=0 | FEAR=0 | BIZ=0 | H-L=18 |
| EXH=4 | ΣENV=5 | ΣMAL=4 | ΣWITH=0 | PATH=4 |
| DIR=2 | | | | ER=10:5:4:0 |
| AGG=2 | | | | AOR=2:4 |
| ΣINT=10 | | | | |

schach, Hand Test, and Draw-A-Person Test. She seemed bemused by the test stimuli and her behavior was odd and incongruous. Often she would chuckle at some rather morbid

and gruesome percepts. Her affect was variable, mercurial and inappropriate. Attitude toward the examiner was hostile, supercilious and condescending.

TEST RESULTS

Basic Diagnostic Formulation

The tests were laden with interpretive material but, since the reader can peruse the protocols at leisure, a protracted analysis of the data will not be attempted. Basically, CD appears to be suffering from paranoid schizophrenia or at least a paranoid condition. Her thought processes are decidedly bizarre. She is experiencing difficulties with interpersonal contacts and is torn by inner disharmony. She is flighty, exhibitionistic and emotionally labile. Traumatic parental relationships are apparent. CD seems to be love-starved and to suffer from deep, unsatisfied dependency needs. Feelings of inferiority, personal inadequacy, sexual confusion and generalized hostility are evident. She is suspicious, critical and aggressive. Symbolic content indicators of the shattered romance are abundant, e.g., "heart's not in very good shape . . ."

Some Comparisons

In comparing the present data with the Rorschachs reported by Stern and MacNaughton, an unexpected similarity was discovered in all the records. The subjects produced responses which appeared to reflect a distinct voyeuristic quality entailing looking into or at something. The percepts were often rare, idiosyncratic and introspective. For example, the following responses were discovered in CD's Rorschach:

And rain running down the side of a window.

Cartoon characters . . . Easter bunny . . . two (Q) looking at each other . . . "Oh, look . . . another Easter bunny who can be my friend!"

CD's Hand Test also reveals a highly unusual voyeuristic response: "Looking at his hand trying to see . . . inspecting their hand . . . What have we here?" One of the most striking features of CD's DAP is the manner in which the female figure is portrayed with her back to the viewer, peering into a sketch book (Fig. 1).

Symbolically, the picture can be construed as a "drawing in a drawing" in which reality is forsaken and fantasy is personified in the form of an artistic image. The voyeuristic component of this projection is unmistakable.

By way of comparison, the first subject reported by Stern and MacNaughton, a 42-year-old female paranoid schizophrenic who believed her father was an impostor, gave the following responses to her first Rorschach:

Two figures of man watching from observation points.

A man with goggles, pointed hat, looking through telescope.

Two men watching behind a cliff, a woman kneeling down, also two more people on the other cliff.

Half a year later following electroshock, the delusion remitted and, upon readministration of the Rorschach, none of the voyeuristic responses remained!

The second case, a 59-year-old male who was diagnosed as a manic-depressive and who believed his wife was a fraud, produced these percepts:

Two women looking at one another.

Two ferocious men looking at one another.

Two insects looking at one another.

This man also received ECT, followed by some improvement, but, on his second Rorschach, two voyeuristic responses persisted:

Two women staring at one another.

Two crows staring at one another.

Stern and MacNaughton stressed the significance of the "minus original" and "inside detail" responses in interpreting their first case but, since the second subject did not produce any 0— or di responses, it does not seem appropriate to consider these scoring symbols as intrinsically related to Capgras' syndrome. What does seem important is the fact that, in all three cases involving a projected "double," including the manic-depressive who differed from the other two



FIGURE 1

in terms of sex and diagnosis, voyeuristic responses were present in the protocols. It is therefore suggested, as a working hypothesis which can be readily verified as other cases of Cap-

gras' syndrome and related aberrations are investigated, that subjects whose delusions include a projected double will produce voyeuristic percepts to projective techniques.



FIGURE 2

DISCUSSION

It would be impossible to refute the objection that the particular diagnostic significance ascribed to the voyeuristic responses is a product of

the author's tendentious imagination. However, as even a cursory analysis of the protocols will reveal, the tests did dovetail nicely in diagnosing CD and also accurately reflected known

aspects of her personality such as the deep-seated hostility and sexual difficulties. It does not, therefore, seem gratuitous to assume that a curious and fixed delusional system might also be expressed as a content leitmotif, especially when similar unusual content is found not only in three different projective tests but also in three separate cases with the same rare delusion.

If it is assumed, for the moment, that voyeuristic responses are indeed typical of Capgras' and related syndromes, an explanation for this phenomenon seems in order. Many of the voyeuristic responses involved two identical figures looking at each other and, despite the bilateral symmetry of the Rorschach, the implication of a "double" seems obvious. Note especially the "bunny rabbit" percept produced by CD in which the projection is verbally transparent, "Oh, look . . . another Easter bunny who can be my friend." Insofar as the voyeuristic aspect of the responses is concerned (looking, staring, gazing, spying) a number of alternatives, all of them admittedly speculative, seem possible: (1) voyeurism (i.e., scotophilia) may be an important factor in the syndrome; (2) since people "project" by looking at projective stimuli, perhaps the inverse is also true — that individuals who project

(a delusion) identify figures who are "looking" on projective tests; (3) voyeuristic responses represent an awareness of and sensitivity to unconscious processes which, in psychotics, become externalized in the forms of delusions.

Classically, in Capgras' syndrome, the patient is female and a paranoid schizophrenic. Since projective testing has classified CD as a paranoid schizophrenic, it is suggested that the "Imaginary Lovers Delusion" is probably a variation of Capgras' syndrome.

In conclusion, it seems appropriate to remark that, although projective tests have been subjected to a great deal of criticism, some of it undoubtedly warranted, it is difficult to envision how any other testing techniques could have rendered such a complete, informative and poignant analysis of this case.

REFERENCES

- Capgras, J. & Reboul-Lachaux, J. Illusion des sosies dans un delire systematisé chronique. *Soc. clin. méd. Psych.*, 1923, 81, 186.
- Stern, K. & MacNaughton, D. Capgras' syndrome, a peculiar illusionary phenomenon, considered with special reference to Rorschach findings. *Psychiat. Quart.*, 1945, 19, 139-163.

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Received February 12, 1966

BOOK REVIEWS

Kadinsky, David, *Die Entwicklung des ich Beim Kinde* (The Development of the "I" (ego) in the Child) Ein Beitrag Zur Analytischen Kinderpsychologie (A Contribution to Analytical Child Psychology) Switzerland: Verlag Hans Huber Bern und Stuttgart, 1964.

This Jungian treatise tries with the help of samples out of his therapeutic work with children to demonstrate how Jungian archetypes play an overwhelming role in the development of the grown up "I" (ego). While the author claims that the small child is in great measure driven by instincts, the child later goes through the stages where it forms a fantasy "I" and a reality "I" side by side.

Whereas in the beginning the fantasy "I" is much the stronger, as the child grows the reality "I" becomes stronger and the fantasy "I" disappears. Often the fantasy "I" produces an archetypal phenomenon in describing the situation with respect to the parents, regardless of the reality situation. Difficulties in the development of the child, according to the book, sometimes seem to be caused by this very phenomenon. Once, however, the therapist interprets these difficulties to parents and children, difficulties are overcome. It is noteworthy that according to the writer fantasy "I" and reality "I" can coexist without necessarily causing confusion. In the samples the author selects, mythological themes appear in the fairy tales of the children which, of course, contain archetypal explanations. The author illustrates with drawings some of his samples as depicted by the child patient and one grown-up patient with emotional difficulties. He also gives three Rorschach protocols in the appendix to further illustrate his contentions.

It could be argued whether the same findings would have been made if his developmental samples had been taken from a Samoan culture for example, or an Eskimo or African native culture. It seems that a great deal of the fairy tales told by the children, in one way or another, are reproductions of fairy tales as they are told in all western civilizations and, therefore, do not represent by necessity original productions of their own collective unconscious. There are one or two

conflicts between the fantasy "I" story and the reality situation which could also be explained in Freudian terms — as an unresolved Oedipal complex, for example.

While the book is a contribution of some significance to the Jungian literature in a field which contains little, that of analytical child psychology, the very Jungian bias undoubtedly colors the explanations very strongly.

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Rabin, A. I., *Growing up in the Kibbutz*, New York; Springer Publishing Company. 1965. 230 pp.

The Israeli kibbutz is a utopia that has succeeded despite reality. In a prolonged life and death struggle with desolate soil and Arab enmity, the kibbutz has triumphed both economically and militarily. In a desert it made ardent farmers of city boys; in a war it made expert soldiers of peaceful idealists. Moreover, the kibbutz has succeeded in educating its children to follow the pioneering path of the founding fathers. They too guard the frontiers of Israel. They are hard workers and fierce fighters . . . a second generation of "profiles in courage."

What is it like to be born, reared, and educated in a kibbutz? Surprisingly few valid studies exist, though there is no paucity of episodic second-hand reports, and of impressionistic first-hand fiction. Rabin's book, *Growing Up In The Kibbutz*, is a welcome contrast. In clear and concise prose it presents a systematic account of child rearing and education in the kibbutz; it explores and interprets the children's personality development at four age levels: infancy, preadolescence, adolescence and young manhood; and it compares the kibbutz children with those reared in the conventional Israeli family.

Communal child rearing is a very "hot" issue in Israel. The controversy is both private and public, touching on fundamental emotions and on cherished beliefs. Psychoanalytic theory postulates the need for *exclusive* and *continuous* contact between infant and mother. In the kibbutz infants do not

live with their parents. They live in a nursery. An infant is breast fed by his mother but is cared for by trained aids. From birth to maturity, age mates and professional personnel share with the parents in the upbringing of the child. To be sure, parents spend with their child a major part of their leisure time: the hours after work, Saturdays and holidays. These meetings are eagerly anticipated by both parent and child. They value their time alone, together. The encounter is so genuine; the atmosphere is intimate; the sharing is personal; and the impact is lasting.

Yet, the fact remains. In a kibbutz, children are exposed to multiple rather than exclusive mothering. Is this practice harmful to the development of personality and character? "No"—says Rabin. His studies indicate that kibbutz children grow up into adolescents and adults free of asocial behaviors that plague other societies: criminality, promiscuity, and homosexuality. Also, mental illness is at a much lower rate. The children are remarkably free of the intense ambivalence of love and hate, dependence and guilt, submission and revolt so ubiquitous and so universal in child-parent relations. Kibbutz children have a close and relatively uncomplicated relation with their parents. From infancy on, they see the parents at work in the fields, in the factories, or in the workshops. There is opportunity for pride and for identification. There is a strong attachment to the community and to the peers with whom life is shared.

Rabin emphasizes that "the kibbutz product is not a paragon of stability, adjustment and happiness in the absolute sense." There is place for improvement.

Yet, the evidence is unequivocal that kibbutz education achieves its stated aims to a degree unparalleled in any other western society.

Are there any implications for American education? Rabin is appropriately cautious. Aims of education cannot be summarily transferred from one culture to another. However, in the scholarly description of the small kibbutz society, there is a message for our "Great Society." Education can affect character and personality. Commitment and courage can better the human condition.

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Wolman, Benjamin B. (Ed.), *Handbook of Clinical Psychology*, New York: McGraw-Hill, 1965, 1616 pp., \$32.50 (Handbook Edition), \$24.50 (Text Edition).

The purpose and aim of this huge volume have been well stated by its chief editor, Wolman, in his preface:

The purpose of the *Handbook* is to acquaint clinical psychologists and other professionals with the tremendous scope of research, experience, theory, and practice in this rapidly growing field. The aim of the *Handbook* is to represent the profession of clinical psychology and to demonstrate its vitality, its vigorous pursuit of scientific truth, and its willingness and capacity for serving those who need it.

The book consists of 58 chapters, grouped into six major parts. Part one deals with research conceptualization and methodology. Part two deals with theoretical foundations; particularly contributions from other disciplines, including genetics, neurology, and biochemistry. Part three is concerned with various diagnostic methods. Part four, the largest of the main divisions, deals with clinical syndrome patterns. Part five consists of chapters devoted to various treatment methods. And part six is concerned with clinical psychology as a profession, including chapters on training, ethics, and relations with other professions.

Besides Wolman and his seven consulting editors, 61 contributors make up the authorship of the *Handbook*. To this reviewer's surprise and delight, he found every one of the 58 chapters readable. Please do not take this for condescension or scant praise. We all know of respected members of our profession whose valuable written contributions we get through only with constant effort and diligence. Nothing in this volume required that kind of straining. Wolman states that each chapter was read and criticized first by him and then by one of the consulting editors. It was then revised and submitted for final editorial approval to Wolman. The process certainly paid off. Besides the enormous contribution of the chief editor, every one of his consultants must have put real and fruitful labour into his job. The seven consulting editors were Gordon F. Derner, Molly Harrower, Robert R. Holt, James G. Miller, O. Hobart Mowrer, Henry A. Murray, and Silvan S. Tomkins.

Another benefit of the thorough editing of the *Handbook* is the frequent cross-refer-

encing among chapters. That is, the writers appear aware of each other's work in the volume and make appropriate reference to it. This certainly increases the sense of unity of the work, and distinguishes it from volumes which are merely collections of separate and unrelated papers.

Beyond readability, most of the chapters are also very high on substantive contributions. A few chapters, inevitably, fall below the overall standard. The characteristic flaw of the relatively poor chapters is a kind of emptiness or lack of substance rather than error. It was this reviewer's impression, backed up by colleagues with other specialities, that the entire *Handbook* was remarkably free from mistakes, from plain factual errors.

Some of the chapters are thorough overall reviews of an area. Frequently, however, Wolman's aim of demonstrating the vitality and vigour of clinical psychology is best served by chapters with quite specialized points of view. Among the fine examples of this sort of contribution are the chapters by Jacob Cohen, O. Hobart Mowrer, and Julius Seeman. Cohen's "Some Statistical Issues in Psychological Research" is a series of four separate essays which he feels are "opinionated, perhaps at times cranky, and undoubtedly controversial." They are. They are also brilliantly well-written and concerned with issues of essential importance to any researcher in psychology (non-clinicians please take note). The fourth of these, "Non parametric, Non-panacea" was quite distressing to this reviewer, as it shook some of his major notions about the role of nonparametric statistics. He has now overcome most of his distress, painfully changed his point of view, and is now (as you see) urging colleagues to undergo the same uncomfortable and educational process.

Mowrer's "Learning Theory and Behavior Therapy" is not chiefly about what most of us mean by "behavior therapy", but is an exposition of the author's rather special views on the causes and cures of neurosis. These are, roughly, that the neurotic is an individual who has willfully misbehaved and is continuing to do so; his cure requires that he

quit concealing his misbehaviour, start feeling guilty, confess and reform. Like Cohen's views on statistics, this runs counter to the present reviewer's idea of the situation — but he has certainly not been converted this time. Still, the chapter is a clear picture of a viewpoint which is spreading in influence: as a result of its author's scientific reputation, and perhaps because of its practical applicability to certain types of patients.

Seeman's "Perspectives in Client-Centered Therapy" should shake up a lot of worn stereotypes about what goes on in "Rogerian" therapy. Following an excellent historical over-view, Seeman presents three excerpts from different therapist and patient pairs. None of the "mm-hm's" or cool reflections here, which once formed the stock-in-trade of at least the parodies of what was called "non-directive" therapy. The therapist is active, feeling, and tremendously *there*. Ten times the amount of expository material could not have made the vigour and variety of current practices half as clear as do these splendidly chosen excerpts from actual therapy sessions.

It is tempting to call attention to a few more favourite chapters, but the reader should be allowed to find his own favourites. A few adverse comments on the *Handbook* should also be made here, if only for the sake of balance. The references in the text of Wolman's chapter on schizophrenia are not all to be found in his references list. Kline's chapter on hypnotherapy suffers from too much exclusive attention to case studies and neglect of research findings which cast doubt on some of the hypotheses derived from individual cases. Yacorzynski should have been allowed and encouraged to write about diagnostic approaches to brain damage, as well as describing the clinical patterns. And, as noted, a few chapters are low on real content.

With that taken care of, let the reviewer put into the form of direct advice the general impression he has tried to share. For all clinical psychologists and advanced graduate students: buy the book.

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ANNOUNCEMENTS

SOCIETY FOR PROJECTIVE TECHNIQUES AND PERSONALITY ASSESSMENT

1966 ANNUAL MEETING

FRIDAY, SEPTEMBER 2

- 9:00-12:50 Board Meeting — Parlor E, Commodore Hotel
- 1:00- 1:50 Distinguished Contributions Award, Frederick Wyatt, Chairman — Windsor Court, Commodore Hotel
- 2:00- 2:50 Presidential Address: "How Objective is Objectivity?", Frederick Wyatt, Ph.D. Windsor Court, Commodore Hotel
- 3:00- 3:50 Business Meeting, Martin Mayman, Chairman — Windsor Court, Commodore Hotel
- 4:00- 5:50 Dutch Treat Cocktail Hour — Parlors B and C, Commodore Hotel

SYMPOSIA CO-SPONSORED BY THE SOCIETY FOR PROJECTIVE TECHNIQUES & PERSONALITY ASSESSMENT:

Friday, Sept. 2, 3:00 p.m.-4:50 p.m.
Empire Room, Waldorf-Astoria Hotel
Community Mental Health: A Challenge to Traditional Diagnostic Methods — Bernard L. Bloom, Ph.D., Chairman.

Friday, Sept. 2, 4:00 p.m.-5:50 p.m.
Terrace Room, Roosevelt Hotel
The Relevance of Personality Assessment to Job Performance — Harry Levinson, Ph.D., Chairman.

Saturday, Sept. 3, 10:00 a.m.-11:50 a.m.
Bowman Room, Biltmore Hotel
Measuring Reality-Adherence in the Rorschach Test — Riley Gardner, Ph.D., Chairman.

Saturday, Sept. 3, 10:00 a.m.-11:50 a.m.
Park Avenue Suite, Waldorf-Astoria Hotel
Is Psychological Evaluation Necessary for Rehabilitation? — Lawrence H. Benjamin, Ph.D., Chairman.

Sunday, Sept. 4, 10:00 a.m.-11:50 a.m.
Vanderbilt Rooms 3-5, Roosevelt Hotel
A Psychoanalyst and a Methodologist Look At Two Examples of Psychoanalytic Research—Martin Mayman, Ph.D., Chairman.

Sunday, Sept. 4, 10:00 a.m.-11:50 a.m.
Palm Garden Room, Waldorf-Astoria Hotel
The Psychologist as an Expert Witness — James McCary, Ph.D., Chairman.

Monday, Sept. 5, 1:00 p.m.-2:50 p.m.
Jansen Suite, Waldorf-Astoria Hotel
The Role of Experiential Data in Personality Assessment and Research — Robert M. Martin, Ph.D., Chairman.

ERRATUM

"The Draw-A-Person-Test and Process-Active Schizophrenia" by Ries, Johnson, Armstrong, & Holmes, which appeared in this Journal 1966, 30, 184-186, contains an error in the "Results" section. Line 7 should read: "These signs were (1) the presence of buttons, $x^2 = 18.3$, .001, $df = 2$; (2) A square body shape, $x^2 = 19.4$, .001, $df = 2$; and (3) proportionately small breasts on the female drawing, $x^2 = 21.7$, .001, $df = 2$." This change in no way affects the results or conclusions of their study; e.g., the relationships reported as not significant with 5 df are also insignificant with 2 df .

Journal of Projective Techniques & Personality Assessment

Vol. 30

October, 1966

No. 5

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Editorial

One of the current problems facing the Society for Projective Techniques & Personality Assessment, Inc. is what to do about the name of this journal and the name of the Society. The organization began as the Rorschach Institute, Inc. and the Journal was then called the Rorschach Research Exchange. As the interest of the group broadened to incorporate other projective techniques the Society became the Society for Projective Techniques and the Journal became the Journal of Projective Techniques. It then became the opinion of the Board of Trustees and the Editorial Committee that it was a mistake to isolate projective techniques from other means of personality assessment and thus the present name has arisen. At the time, it was felt that this long title might be an interim title and that we would eventually want to shorten it to something like the "Journal of Personality Assessment". When this matter was discussed at the mid-year meeting of the Board of Trustees there were mixed views, with some members favoring the change and others feeling that personality assessment implied a point of view incongruent with their goals and objectives. The undersigned would like to initiate some dialogue concerning this issue among the readers of this Journal. As a starter, there is quoted below an excerpt from a letter to the editor by Dr. Melvin A. Gravitz of Bethesda, Maryland:

"Insofar as the name of our Society and Journal are concerned, my thoughts are that 'personality assessment' does a better job of describing what we do when we employ projective techniques, objective tests, inventories, interviews, observations, etc., as evaluative aids. Assessment is the process, while projective and other instruments are some of the inputs to the psychologist who is the ultimate instrument (even with computers!). Therefore, were we to call ourselves the Society for Personality Assessment we would more accurately be describing the *raison d'être* for our existence. Ditto for the Journal of Personality Assessment.

"Furthermore, it has been my impression down here in the Washington area that there has been a de-emphasis on projective methods as such in recent years concomitant with a broader approach to assessment and evaluation by use of the MMPI, etc. Perhaps this is but a reflection of the direction in which my own professional efforts have gone, but a change in title could serve to broaden our Society by attracting psychologists with other than projective interests. All this has been rather interesting for me to observe because I am a product of Gordon Derner and the Adelphi program, and I learned Rorschach from Munroe, Halpern *et al.* at CCNY in the early '50s."

People with similar or opposite views are invited to submit their comments to the Journal for publication in the next issue.

WALTER G. KLOPPER

A Sociocultural Content Interpretation of Rorschach's Experience Balance

YITZCHOK ABRAMSON AND JOSEPH F. RYCHLAK
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Summary: The present study asked naive college students to assess the personality of pseudo-people on the basis of what the latter had supposedly said at various points over the previous day or two. Actually, the contents of this pseudo-speech were based upon responses to the Rorschach test. By using certain Klopferian ratios a series of such pseudo-language styles were worked out, with the major ratio being the familiar Rorschach Experience Balance. It was then predicted and substantiated that college students could accurately assess the personality of the pseudo-people on the basis of the Rorschach response content directly. The theory of vision on which such ratios are based is therefore put into challenge, and an alternative sociocultural explanation is given additional support.

Although proceeding slowly in a formal sense, there is surely a trend away from structural treatment of the Rorschach test, toward that method of analysis known as the content approach. This is more than simply a matter of how best to score an instrument; it bears directly on the question of how to conceptualize and explain the nature of clinical work. Where do the clinician's hypotheses come from? Are they generated entirely by the language of determinants (M greater than C), or is this merely a shorthand notation of the more fundamental language of content (this subject sees more humans in life-like action than he sees inanimate or unmoving objects, described through use of color adjectives, etc.) which is the *actual* source of clinical insight? Does the clinician delude himself into thinking that the shorthand generates the message? We think so, and, in a series of studies prompted by Rychlak's socio-cultural theory of phantasy, have tried to demonstrate the fact in various ways (Rychlak, 1959; Rychlak and Guinouard, 1960, 1961; Garmize and Rychlak, 1964; Rychlak and Maier, 1964; Rychlak and O'Leary, 1965; Murray and Rychlak, 1966).

In brief, the theory has it that if a clinician draws accurate inferences about a subject's personality from the latter's interpretation of an inkblot

(or, any related item of experience), he can only do so because of the common sociocultural heritage he shares with this subject. As Bakan has so well expressed the essentials of this tactic in his presentation of the Rule of Bayes, the clinician begins with the assumption that: "after all, we are all pretty much alike" (Bakan, 1956). He then begins weighing the alternatives of "seeing" something like X while feeling or "being" like Y, against seeing X and being Non-Y like. What is the probability of seeing a number of "prettily colored" flowers and being outgoing, against the probability of seeing the flowers and not being outgoing? The clinical evaluation is made on the basis of what one person will communicate to another, given the chance of saying any of a number of things. Because the clinician has shared a common sociocultural background with the subject, he can "play two roles" in the testing situation and evaluate, with some success, the behavioral pattern of his object of observation.

What is more, so can non-clinicians, like college students who judge schizophrenic responses on the Wechsler Vocabulary test (Hunt, Jones, and Hunt, 1957), secretaries who judge brain pathology on the Bender-Gestalt (Goldberg, 1959), and college students who judge symbols on the Rorschach (Garmize and Rychlak,

1964). In each case, naive subjects could reverse this role pattern, and, playing the clinical side of it, assess the personality or pathology of their sociocultural peers (within broad limits, of course). They knew nothing of "scores," which is to say they did not know the shorthand, but they did implicitly know the informal theory and stereotyping on which these assessments ultimately hinge. Their knowledge was contentual.

The present research continues in this vein, using the strategy of having naive college students assess personality from the verbal Rorschach protocol directly, with no blots or scorings involved, but where a ratio of *M to C verbal statements* has been worked out ahead of time based upon examples drawn from the text by Klopfer, Ainsworth, Klopfer, and Holt (1954). In addition to the theory espoused above, the writers predicted that college subjects could analyze such verbal protocols by judging directly from content because of research findings on the *M* and *C* dimensions, the essential ingredients of Rorschach's *Erlebnistypus* (1943). Thus, Levy (1955) has presented evidence to show that *M* scores, rather than serving as determinants of *H* content, actually are "rhetorical embellishments" of *H* which fail to add materially to the *H* scores as they stand. Murstein has observed that in most of the factor analyses of the Rorschach, *M* scores have correlated .90 or above with *H*-plus-*Hd* content scorings (Murstein, 1965, p. 401). Finally, Wittenborn has found *M* to be factorially distinct from *C* and *CF*, but not from *FC* (1950). This would meet our theoretical bias, since it is a subject's clearest color references (adjectives, content statements) which should provide the greatest discriminatory power and therefore stand most independent of *M*.

METHOD

Subjects

The *Ss* of this study were 334 col-

lege freshman and sophomore students who were in their first year of psychology study (first or second introductory courses). They ranged in chronological age from 18 to 25 years. To meet experimental requirements, ten classes ranging in size from 26 to 53 students were selected and randomly assigned to one of ten experimentally prearranged Rorschach protocol conditions (ref. below).

Rorschach Protocols

The present study focused its main interest on the Experience Balance, because of its historical importance as Rorschach's major ratio concept, and its wide acceptability among clinicians down to the present day. Rorschach used the terms *introversion* and *extratensiveness*, but we would argue (ref. Discussion) that the terms really do not differ from the more general meaning implied in the *introversion-extraversion* usages. In order to provide a standard of comparison it was decided to include four other ratios which are proffered by Klopfer et al. (1954). We can speak, therefore, of five dimensions of personality as gleaned from the main and secondary response determinants (p. 245) and included in the following "ratios:"

(1) *Introversion vs. Extraversion*: When *M* is twice as frequent as *Sum-C*, the protocol reflects introversion; vice versa implies extraversion (p. 372).

(2) *Mature vs. Immature*: Where *M* is approximately equal to *FM* we have a mature individual who retains controls within his value system, but where *FM* exceeds *M* by more than two we have immaturity (pp. 288-289).

(3) *Anxious vs. Calm*: If *KF* responses are greater than *FK*, the individual is experiencing anxiety; vice versa implies that the individual is objectifying his anxiety in trying to handle it — hence, we have a calm person (pp. 267-268).

(4) *In Great Need of Affection vs. Normal Need of Affection*: If *FK+Fc* is greater than $\frac{3}{4}$ ths of total *F*, then the protocol reflects an excessive need for affection; if *FK+Fc* is equal to approximately $\frac{1}{4}$ to $\frac{3}{4}$ of total

F, the individual has a normal need of affection (pp. 291-292).

(5) *Inhibited vs. Lack of Inhibition*: If $(Hd+Ad)$ is more than $\frac{1}{2} (H+A)$ it suggests an overcritical, restrained, possibly obsessive-compulsive pattern; whereas if $(Hd+Ad)$ is roughly $\frac{1}{4}$ to $\frac{1}{2}$ of $(H+A)$, there is the suggestion of a lack of inhibition, which does not mean "uninhibited," but rather merely a normal, spontaneous form of behavior (p. 311).

Doubtless certain readers will take objection to the easy paralleling of Rorschach structural scorings and the descriptive labels presented above, even though they are based upon commentary in Klopfer *et al.* (1954). However, it was felt that we needed other dimensions coming into the protocols to be judged by Ss than simply the M and C ratio, and, as a form of first step in the area it seemed only natural to extract related dimensions from Klopfer's well-documented text.

The procedure followed in making up Rorschach protocols was to use the scored examples from the Klopfer *et al.* volume (1954). In this way, we had expert scoring drawn right from the source of a widely used scheme of Rorschach analysis. This obviated any argument based upon unreliability or invalidity of scoring, since we were actually using the criterion dimension as examples. Basing our selection on the five quantitative ratios already reviewed, as scored in the Klopfer text, Rorschach protocols were constructed which ranged in length from 18 to 31 "responses." In constructing a protocol it was necessary first to determine which of the ends of our five dimensions would be in ascendance. A variable end of a dimension was considered ascendant if it satisfied the particular number of determinants called for in the ratio.

Since there are five ratios, and each end of a dimension had to be in the ascendance on one protocol, it was necessary to construct 10 Rorschach protocols. A method was followed in

which each end of a dimension reached ascendancy with four other dimension ends also in ascendancy, and by repeating this process five times for each end of a dimension a balancing of Rorschach trends was achieved. Thus, for example, protocol 1 had introversion, maturity, calmness, normal need of affection, and lack of inhibition dimensions all in ascendance. Protocol 2 had immaturity, extraversion, calmness, normal need of affection, and lack of inhibition all in ascendance. Protocol 5 had inhibition, introversion, maturity, calmness, and normal need of affection in ascendance. And, protocol 10 had lack of inhibition, introversion, immaturity, anxiousness, and great need of affection all in ascendance. In this way, a personality characteristic like extraversion was balanced off against all (eight) other dimensions *except* introversion. And, introversion was balanced off against all others *except* extraversion, etc.

In taking responses from the Klopfer text, the inquiry material was omitted. In other words, only the responses as taken down in the performance proper were recorded, so that in one sense we handicapped the Rorschach analysts of our study by limiting them to the verbal report of the initial projective response. As a sample protocol, here are the combinations necessary for protocol 2: immaturity — 7 FM, 3M; extraversion — 6 Sum C, 3M; calmness — 2 FK, 1 KF; normal need of affection — 2FK, 4 Fc, 12 F; and lack of inhibition — 3 Hd, 4 Ad, 2H, and 12 A. The verbal contents of the 30 responses it took to meet these ratio requirements were as follows:

Some kind of live caterpillar; Two old people talking at once; Some kind of winged insect or bug; An old man writing with a quill; Two airdale dogs lying down; A large pair of boots; Two human heads with fuzzy hair back to back; The head of a Scottie; A couple of guys at a party having a tug of war over a punch bowl; Looks like orange water ice; A map of a continent; A maple leaf; Some blue spiders; Two teddy bears

clinging to a tree; A brown mouse; A small dog skidding suddenly to a stop; Two knitting needles with knitting in between; Two poodles sitting back on their haunches and barking; A mixture between a lampshade and an umbrella; Flames behind clouds; A tangled bush reflected in a lake, with gnarled trees; A raccoon looking at something on the ground; A small volcano, surrounded by mountains in the distance; Two faces with definitely turned up noses; An orange two toned sweet pea; Water; Sky, just sky; A small dog prancing; A queer type of fish, one of the things you might see in the encyclopedia; Here is a candle with wax dripping.

Procedure

Ignoring at this point the actual scorings of the Rorschach protocols, the verbal contents of the composite performance proper were reproduced by mimeograph, and then randomly assigned to ten classes of students. Each class was thus asked to assess one protocol, though no reference was made to the inkblot test as such. The instructions indicated that we all must occasionally make judgments of personality from "what people say." After passing out a scoring sheet the Experimenter indicated that he wanted the class to judge a person's personality based upon a series of remarks which he had randomly selected from this person's conversations and personal observations over a three or four day period. A subject was alerted to the fact that these statements were out of context and therefore would not hang together coherently, but that he was to read them over and then, based upon his global impressions, make a personality judgement of the individual who might have said all of these things.

The verbal statements were listed down the left hand side of an 8½ by 14 inches sheet, and in the upper right hand corner there was a 2 x 5 inches box which contained the dimensions — as opposed, two-block squares. The ends of each dimension (introversion vs. extraversion, etc.) were clearly marked on either side of the box. A flaw, which might be

noted at this point, was that we did not randomize either the ends of our dimensions or the order of their listing, so that all forms appeared exactly as listed above, in citing the dimensions used. Ss were asked to place a check in one or the other of the two boxes for each dimension after globally assessing the protocol. At this time, each of the dimensions was defined by the *E*, using the following definitions:

Introversion: A person who directs his interests inward, and finds satisfaction in an inner life of thought and fancy.

Extraversion: A person who directs his interests outward, and who finds satisfaction in external things.

Mature: A person who is emotionally full-grown and adult-like, no matter what his chronological age happens to be.

Immature: A person who has not yet fully developed emotionally, so that he strikes us as being child-like regardless of his chronological age.

Calm: A person with a tranquil, placid, peaceful manner of behaving.

Anxious: A person who is excited and upset about what may happen all of the time.

Great Need of Affection: A person who continually needs bolstering or compliments from his friends, tends to "hang-on" even when not greatly wanted, and goes to pieces when ignored.

Normal Need of Affection: A person who likes to mix with others at times, but who can also work and play effectively when alone.

Inhibited: A person who behaves rigidly or in a constrained way, and who is not likely to be spontaneous, even when among his family circle or with close friends.

Lack of Inhibition: A person who behaves freely, in a spontaneous way whether he is among close friends, or among strangers.

The experimental hypothesis, of course, was that in those protocols in which the appropriate end of a dimension was in ascendancy, as predicted by the Klopferian ratios, we would find subjects choosing them accurately on the basis of the verbal content as listed down the left hand side of their scoring sheets. They can do this better than chance because

they live in a relatively common socio-cultural tradition, and by roleplaying the imaginary responder they can accurately gauge his personality.

RESULTS

As the subjects were asked to make an "either-or" choice the data are basically dichotomous, unless of course a common set or stereotype is in operation. Since there was no empirical basis on which to assume that one or the other of these dimensions might combine in a consistent way, a chi-square analysis was settled upon. Due to the weighting of dimensions it was possible to combine all those protocols which had a common ascendant dimension in an attempt to see if this dimension was selected more frequently than its opposite, which had not been involved at all. Chi-squares were first computed for each variable end of a dimension which was in ascendancy. This involved pooling five protocols for each ascendant variable. Inasmuch as there is but one degree of freedom, the correction for continuity suggested by Edwards (1960, p. 155) was used even though the cell frequencies were substantial. Table I presents the ascendant dimensions broken down according to the number of Ss who selected the appropriate alternative, and the resultant chi-square significance levels. The total number of Ss selecting on

each dimension varies because of the differing class sizes used.

Note that though all of the dimensions reflected significant findings, it is only the extraversion vs. introversion comparison which is predicted correctly in both directions. When introversion was in ascendancy more Ss selected it (108) than selected extraversion (80) ($P < .05$). And, when extraversion was in ascendancy, the opposite tendency was noted (89 and 57, $P < .05$). However, other dimensions did not fare so well. The calm side of the calm-anxious dimension was predicted correctly, but anxiety did not come in with a significant finding. And, in the case of the remaining dimensions, one half of the predicted selections were reversed. Thus, for example, when immaturity was in ascendancy, more Ss selected immaturity (114) than maturity (39) ($P < .01$). But, when maturity was in ascendancy, more Ss also selected immaturity (119) than maturity (62) ($P < .01$). Similar findings will be noted for need affection and inhibition.

In an attempt to account for what was taking place, the writers next calculated chi-squares for each of the ten protocols to see if there was any tendency for one or two classes to account for the entire group findings. It was found that all Rorschach protocols except protocol 2 were significantly different in subject distribution for the classes which judged them. It therefore appeared that our sample in general was making discriminations, and that an atypical class or two could not be determining the findings. We next theorized that subjects were selecting the dimensions according to one overriding stereotype, and that, having made this fundamental decision, they sorted "down the line" so to speak. Since the extraversion-introversion dimension was the only one which reached a significant level in both directions, it was hypothesized that this was the overriding stereotype of importance.

TABLE I — Ascendant Rorschach Dimensions, and Sample Selection Breakdown

| Ascendant Dimensions | No. Ss Choosing Correctly | No. Ss Choosing Incorrectly |
|--------------------------|---------------------------|-----------------------------|
| Introversion | 108 | 80* |
| Extraversion | 89 | 57* |
| Maturity | 62 | 119** |
| Immaturity | 114 | 39** |
| Anxious | 98 | 98 |
| Calm | 88 | 56** |
| Great Need of Affection | 69 | 96* |
| Normal Need of Affection | 112 | 57** |
| Inhibition | 56 | 118** |
| Lack of Inhibition | 105 | 55** |

*Chi-square significant at .05 level.

**Chi-square significant at .01 level.

By carefully examining the subject selections (distributions) of each protocol, we did indeed find a trend taking shape. When selecting the *extraversion* side of our major dimensions, subjects tended also to choose calm, normal need of affection, and lack of inhibition. This trend held up over all those protocols in which extraversion was selected as being characteristic of the respondent (six in all, with one of course being an error for the class selecting it). When *introversion* was selected on four protocols, it reflected a comparable tendency to go along with abnormal need of affection and inhibition.

DISCUSSION

The findings are explicable, including those on the reversal of dimensions. Thus, the popular stereotype of an outgoing, extraverted individual would surely suggest calmness in interpersonal relations, a normal need of affection, and the lack of inhibition. Introversion, on the other hand, would be more likely to be linked to an inhibited manner, which in itself may suggest that such an individual needs a bit more reassurance or signs of affection from others than most people. There is a certain plausibility in all of this. Even the fact that immaturity was consistently ascribed to all protocols makes sense. After all, any "person" who would actually make the "teddy bear" remarks ascribed to the respondents of our study might surely be considered a little child-like.

Despite these plausibilities, the flaw in our rating procedure referred to in the Method section (ref. above) allows for another explanation of the findings. Since the dimensions going along with extraversion (calmness, normal need of affection, and lack of inhibition) and those going along with introversion (abnormal need of affection and inhibition) always fell *below* this first dimension on the scoring sheets, it could be that we have a response set in operation. It might be

claimed that our Ss simply continued to score beneath this or that end of the introversion-extraversion dimension, after having made this initial discrimination. The argument against this interpretation is that if this were the case, then surely the anxious-calm and even the mature-immature dimensions should have followed suit. Yet in these cases we did not have a simple continuation of the ends of our major dimension. This fact, that the Ss did not go completely down one side or the other of our scoring box, indicates to the writers that they were indeed trying to make judgments at both ends of each dimension. We therefore conclude that a stereotype rather than a response set was primarily responsible for the reversals on our secondary dimensions.

More fundamentally, and of most interest to the writers, was the fact that the introversion-extraversion dimension so dominated the findings. It seems clear from this research that individuals may be globally assessed as to the Experience Balance from their verbal contents alone, and, consequently, that the theory of vision which underlies this ratio is put into serious question. In ironic fashion, we have both supported Rorschach and the Klopferian scoring scheme, yet put into doubt the very theory on which it is based. Clinicians have long believed that there must be validity to the more global assessments of personality drawn from the Rorschach, even though they have their difficulties proving it. We would suggest that at least some of this difficulty stems from the unnecessary desire to insist upon a determinant approach to the inkblot technique, with the dubious structural theory which provides its underpinnings. There was no use made in the present research of the inquiry as such, with its great elaboration of what the individual supposedly "was using" in seeing what he saw.

Some attention should be paid to the theoretical constructs of extraversion or extratensiveness and introver-

sion or introversion as such, and why it may be that they should have become so central in Rorschach's initial thinking. It is interesting to note that both Rorschach (1943, p. 82) and Klopfer *et al.* (1954, p. 370) have expressed a certain trepidation over the tendency to draw a direct parallel between the test constructs as such, and Jung's concepts on the one hand, or the typical stereotype as was done in this study on the other. Rorschach, for example, notes that his terminology differs from Jung's, and that he does not even view these tendencies as true opposites, which Jung surely did (Rorschach, 1943, p. 82). However, we do not accept these attempts to make the Rorschach test constructs independent of the more common usages, and, if this were in fact the case the present findings would be inexplicable. Whether Jung or Rorschach or common stereotyping is at play, it seems clear that all of the *meanings* share the common notion of an inwardly-living person, who relies on his own cogitations, etc., as opposed to an outwardly-living person, who prefers the stimulation of a group, etc. Though there may be ways in which these concepts transcend a dimensional characterization, surely they are most readily thought of in oppositional terms.

What is more, we would argue that the reason Rorschach became so immediately drawn to this dimension was, in addition to his brief exposure to Jung, the fact that it is so central a feature of any two-person contact. This dimension *has* to be one of the most salient aspects of any personality theory. We are all immediately responsive to the thrust of another's personality, and, no matter what terms we choose to use, this "impact" dimension will surely enter into our descriptive labels in some fashion. The writers would agree with Klopfer *et al.* (1954, p. 370) when they contend that introversion does not necessarily index social maladjustment in another, nor does extraversion imply

good adjustment. Indeed, as we have seen in the present study, the anxiety and immaturity variables did not even suggest that this side of the question need be any necessary aspect of the common stereotype. This does not obviate the fact, however, that if someone is constructing a new projective device he will probably come upon the inward vs. outward thrust of personal tendencies as a first impression. It is for *this* reason that we feel Rorschach chose the so-called M to C ratio as his initial ratio of importance.

REFERENCES

- Bakan, D. Clinical psychology and logic. *Amer. Psychologist*, 1956, 11, 655-662.
- Edwards, A. L. *Statistical analysis*. New York: Holt, Rinehart & Winston, 1960.
- Garmize, L. M., & Rychlak, J. F. Role-play validation of a sociocultural theory of symbolism. *J. consult. Psychol.*, 1964, 28, 107-115.
- Goldberg, L. R. The effectiveness of clinicians' judgements. *J. consult. Psychol.*, 1959, 23, 25-33.
- Hunt, W. A., Jones, N. F., & Hunt, Edna B. Reliability of clinical judgements as a function of clinical experience. *J. clin. Psychol.*, 1957, 13, 377-378.
- Klopfer, B., Ainsworth, Mary D., Klopfer, W. G., & Holt, R. R. *Developments in the Rorschach technique*. Vol. I. New York: World Book Co., 1954.
- Levy, L. H. Movement as a "rhetorical embellishment" of human percepts. *J. consult. Psychol.*, 1955, 19, 469-471.
- Murray, J. D., & Rychlak, J. F. Healthy, neutral, and unhealthy content in the Rorschach responses of schizophrenic and normal adults. *J. proj. Tech. pers. Assessm.*, 1966.
- Murstein, B. I. (Ed.) *Handbook of projective techniques*. New York: Basic Books, Inc., 1965.
- Rorschach, H. *Psychodiagnostics*. New York: Grune & Stratton, 1943.
- Rychlak, J. F. Forced associations, symbolism, and Rorschach constructs. *J. consult. Psychol.*, 1959, 23, 455-460.
- Rychlak, J. F., & Guinouard, D. E. Rorschach content, personality and popularity. *J. proj. Tech.*, 1960, 24, 322-332.
- Rychlak, J. F., & Guinouard, D. E. Symbolic interpretation of Rorschach content. *J. consult. Psychol.*, 1961, 25, p. 370.
- Rychlak, J. F., & Maier, L. R. Rorschach content responses of popular and unpopu-

- lar junior high school students. *J. clin. Psychol.*, 1964, 20, 381-384.
- Rychlak, J. F., & O'Leary, L. R. Unhealthy content in the Rorschach responses of children and adolescents. *J. proj. Tech. pers. Assessm.*, 1965, 29, 354-368.
- Wittenborn, J. R. A factor analysis of Rorschach scoring categories. *J. consult Psychol.*, 1950, 14, 261-267.
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The Social Psychology of the Use of Psychological Tests to Predict Brain Damage

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Summary: Levy and Orr reported provocative results in their analysis of published research on the Rorschach test. They found significant interrelationships among three dichotomized variables: favorable or unfavorable outcome; academic or non-academic affiliation of the principal investigator; and type of criterion studied (construct vs. criterion). Unfortunately, they failed to use blind ratings. The present study used blind ratings in investigating the interrelationships of the same three variables in published research dealing with the prediction of brain damage by means of psychological tests. In general, the findings paralleled those of Levy and Orr, with the important difference that the present results failed to reach statistical significance while theirs did.

The motives and attitudes of the experimenter have become topics of frequent interest within the last several years. Rosenthal (1963, 1964) has demonstrated repeatedly the influence on the experiment of the experimenter's expectations. Shaffer (1953) has described the differences between those psychologists who publish and those who do not, and Klausner (1965) has analyzed the differences among psychologists, psychiatrists, social scientists and physicians in their use of descriptive terms in discussing stress responses. It is apparent that in much of a scientist's professional behavior, even in his reliance on statistical tests (Rosenthal and Gaito, 1963), his values and background will somehow play a part.

One of the most imaginative of the studies of the experimenter was that of Levy and Orr (1959) who examined published articles dealing with the validity of the Rorschach test for the interrelationships among three dichotomized variables: favorable or unfavorable outcome of the research; academic affiliation vs. non-academic affiliation of the principal investigator; and type of validity studied (construct vs. criterion). They found that psychologists working in academic settings more frequently investigated construct validity while

those working in non-academic settings more frequently investigated criterion validity ($p = .01$); that academic psychologists produced positive results more frequently when they studied construct validity than criterion validity ($p = .001$); that construct validity studies more frequently produced positive results when studied by an academic psychologist than a non-academic psychologist ($p = .05$), while criterion validity studies more frequently produced positive results when studied by a non-academic psychologist than an academic psychologist ($p = .05$).

Unfortunately, Levy and Orr failed to remove the identifications of the authors when they rated the journal articles for results and type of validity studied. If knowledge of the group to which the subject belongs can influence the experimenter's behavior (Rosenthal and Fode, 1963), it is possible that Levy and Orr could have unwittingly introduced bias in their ratings.

The present study was undertaken for two purposes: to study the generality of the findings of Levy and Orr in another area of psychological research, that relating to brain damage, and to study this phenomenon using blind ratings.

TABLE I — Distribution of Studies Among Variables of Setting, Type of Validity and Outcome

| | Academic | | Nonacademic | |
|-------------|-----------|-----------|-------------|-----------|
| | Construct | Criterion | Construct | Criterion |
| Favorable | 12 | 16 | 6 | 25 |
| Unfavorable | 0 | 6 | 2 | 5 |

TABLE II — Summary of Statistical Tests

| Comparison | Statistical test | p value* | p value of Levy and Orr* |
|--------------------------|-------------------|----------|--------------------------|
| Type of study x setting | X ² | .10 | .01 |
| Results x type of study | X ² | .15 | |
| Academic setting only | Fisher exact test | .055 | .001 |
| Nonacademic setting only | Fisher exact test | N.S. | N.S. |
| Results x setting | X ² | N.S. | |
| Construct studies only | Fisher exact test | .15 | .05 |
| Criterion studies only | X ² | N.S. | .05 |

* One-tailed test

METHOD

All the studies relating to the prediction of brain damage by means of psychological tests published in the years 1959 through 1968 inclusive in the following journals were analyzed: *Journal of Consulting Psychology*, *Journal of Clinical Psychology*, *Journal of Abnormal and Social Psychology*, *Journal of Nervous and Mental Disorders*. In all, 72 useable articles were found. An abstract of each article was read into a tape recorder, with the name of the author and his institutional affiliation omitted. Two trained judges¹ listened to the tapes and made independent judgments regarding outcome and type of validity studied. Differences between judges were resolved in conference, again with no knowledge of the investigator. Institutional affiliation of the investigator was determined by responses to a brief questionnaire mailed to each. If the senior author's principal duties at the time he collected his data were at a University or Medical School, or if he had been a student enrolled in a graduate program, he was categorized as an academic psychologist. All senior authors working in such service agencies as child guidance clinics

and VA hospitals were categorized as non-academic psychologists. Classification of outcome of the studies was based on the conclusions the experimenters made about their own studies. The definitions of construct and criterion validity were similar to those used by Levy and Orr: criterion validity referred to practical decisions and emphasis on the criterion, while construct validity referred to theoretical issues and to investigations of the test itself.

RESULTS

There was 81% agreement between the two judges regarding the type of validity studied and 94.5% agreement regarding the outcome of the study. The distribution of the studies on the three variables is found in Table 1 and a summary of the statistical tests is found in Table 2.

DISCUSSION

In general, the results of the present study parallel those found by Levy and Orr, with the important difference that our results do not reach statistical significance while theirs do. The one result which received confirmation in both studies was that academic psychologists reported a higher rate of positive results for construct validity studies than criterion validity studies. The other statistically signifi-

¹ The judges were Dr. Bertram Rothschild and Dr. Arthur Seagull, to whom the authors are deeply indebted.

cant results of Levy and Orr failed to reach acceptable significance levels in the present study, although they were in the predicted direction.

The failure of the present study to replicate the results of Levy and Orr may be due to several factors, undoubtedly operating together rather than individually. Brain damage research is probably subject to different sociological laws than Rorschach research. Comparison of Levy and Orr's data and our data shows at least one fundamental difference between Rorschach research and brain damage research: Levy and Orr reported 57% favorable outcomes while our review of brain damage research shows 82% favorable outcomes. This difference is surprising and, if anything, is in the direction opposite to that which might have been predicted. Levy and Orr's conclusions may not reflect general laws of experimentation but only those forces which produce work on the Rorschach test.

Failure to replicate may also have been due to the decreased N of the present study. Levy and Orr used 168 studies, while we could only find 72 studies. An increased sample size would have yielded more significant findings, provided the proportions would have remained constant.²

Another factor contributing to differences in results obtained was the greater difficulty in reaching agreement regarding the type of validity studied. Brain damage research was obviously more difficult to categorize than Rorschach research (81% agreement in the present study in contrast to 93% agreement found by Levy and Orr) and this may have introduced sufficient error in our ratings to have prevented the results from reaching satisfactory statistical levels.

Finally, there is, of course, the possibility that Levy and Orr were enabled to introduce systematic bias in their ratings because of their failure to remove the identification of the authors when the articles were being judged. Those who knew the hypothesis were making the judgments. In our study it would not have taken many shifts from one cell to another to have produced more impressive results. Even here the possibility of bias was not totally removed, since the second author, who prepared the abstracts of the journal articles for the judges to rate, was aware of the hypothesis. It is ironic that a study designed to investigate the effects of the experimenter on the research he does should itself be questioned regarding experimenter bias.

REFERENCES

- Klausner, S. Z. Some notes on the production of psychiatric and psychological knowledge. *J. consult. Psychol.*, 1965, 29, 405-414.
- Levy, L. & Orr, T. B. The social psychology of Rorschach validity research. *J. abnormal soc. Psychol.*, 1959, 58, 79-83.
- Rosenthal, R. On the social psychology of the psychological experiment: the experimenter's hypothesis as unintended determinant of experimental results. *Amer. Scientist*, 1963, 51, 268-283.
- Rosenthal, R. The effect of the experimenter on the results of psychological research. Chapter in Maher, A. (Ed.) *Progress in Experimental Personality Research*, Vol. 1, 1964.
- Rosenthal, R. & Fode, K. The effect of experimenter bias on the performance of the albino rat. *Behav. Sci.*, 1963, 8, 183-189.
- Rosenthal, R. & Gaito, J. The interpretation of levels of significance by psychological researchers. *J. Psychol.*, 1963, 55, 33-38.
- Shaffer, L. F. Of whose reality I cannot doubt. *Amer. Psychol.*, 1953, 8, 608-623.
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Received April 16, 1966

²This observation was made by Dr. Hayne Reese.

The Meaning of the Movement Response and of Its Changes During Therapy: A Review

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Summary: This review has attempted to encompass the various interpretations of the movement response (M, FM, and m) and to assess its importance. This spectrum of opinions was dichotomized into those opinions which supported the idea that the movement response was a reflection of overt behavior (observable, social) and those which supported the idea that it was only a reflection of the fantasy of the individual. The discovery of this division of opinion led to an examination of studies which had been done on the relation of the movement response to overt behavior and of studies on the evaluation or prediction of progress in psychotherapy. These studies were evaluated and seemed, on the whole, to support the idea that the movement response was a reflection of overt observable social behavior. The main caution of these studies seemed to be that the movement response must be evaluated individually and that its qualitative evaluation and categorization was essential to a meaningful interpretation.

Theoretical Background

The designation and interpretation of the movement response appears to be one of the most important, yet one of the most basically undecided questions in the use of the Rorschach. There appear to be two distinct schools of interpretation. Rorschach (1942) talked of the M response as being determined by "form perception plus kinesthetic factors", and being increased by a lessening of overt motor activity. This definition also implied that the M response revealed basic attitudes that a person held toward others, and that these attitudes resided in the unconscious or the imagination. Beck (1950), Klopfer and Sender (1936), and Schachtel (1950) all seem to support this position and to contend that the M response is never a direct reflection of overt behavior. Beck defines the M response as, "mental activities in which we should like to engage in the outer world, but can not or dare not; they are our wish-fulfilling activities". According to this conception, the content of the M response would never be directly reflected in the individual's external conduct.

On the other hand, Oberholzer (1942) says, "The M series is what is 'lived'. I purposely avoid saying 'experienced' in order not to imply that the patient knows the nature of the experience. M is the compulsion determining what is lived and how it is lived". Also, observations on treated neurotics prompted Rorschach to alter his conception of the M: "Subjects who interpret extension kinesthesias are active individuals with strong drives toward importance and activity, although they frequently show neurotic inhibitions. Those who see flexion kinesthesias have passive and resigned natures" (1942). These later definitions seem not to exclude the possibility of the M response being a direct reflection of outward conduct, while not explicitly stating and supporting the idea.

Piotrowski (1937) has taken the view that M content is not repressed, even when the patient is not aware of it, and that it directly reflects the social behavior. This view is exactly the opposite to that originally expressed by Rorschach and continued by Beck. Furthermore, Phillips and Smith (1953) appear to support the view that the characteristics of the M response are reflected in overt behavior when they state "M . . . is the first

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response to be restricted when it becomes urgent for an individual to concentrate on his immediate problem and as anxiety increases". Finally, further support for this position is given by Shalit's (1965) statement that, "Only deliberate attitude change by the subjects . . . should be able to affect the balance of disposition as reflected by M, and possibly also FM responses". Thus, there appears to be a continuum of opinion as to the sensitivity and relationship of the M response to social behavior.

The differences among these positions seem to be made even more diffuse by Piotrowski's elaboration upon the M, FM, and m responses (1937). Rorschach did not feel inkblot interpretations of animals or inanimate objects in motion had the same psychological significance as the interpretations of active human figures. He said, "They are form answers, a designation according to the form of the picture only and the mention of movement is often merely an oratorical flourish or a secondary association". It was felt that in such cases the S inferred motion from the projection of what he saw in the inkblot and did not actually experience the feeling of motion. However, Piotrowski felt that the psychological significance of animal movement was different from that of the pure form response. Klopfer believed FM indicated a normal stage in the growth of the inner life which was not yet fully developed. He felt that the FM response represented capacities of the inner life which might develop later into mature M and which would not be deviations from the normal development (Klopfer & Kelley, 1942). Piotrowski (1937) inferred from this that the attitudes expressed in the FM, being less mature, would be less integrated into the total personality of the patient than the attitudes expressed in the M response, but would still be qualitatively different from form responses and reflect aspects of the person's overt behavior.

Piotrowski saw the "expressional m" as being comprised chiefly of the movement of inanimate objects. The human or animal figures seen in the M responses do not move, but suggest by the position of their body that a good deal of tension or repressed feeling animates them. Piotrowski feels that the patients who produce all three interpretations have a more complex and richer inner life than those having only one or more of these categories. He quotes Rorschach as saying, "There are a number of patients who are capable of sensing kinesthetically not only human beings and man-like animals, but animals of all kinds, plants, and even geometrical figures and single lines. In these cases we deal with subjects who are good observers" (1942). Piotrowski feels that this implies that the patients with M, FM, and m responses are well capable of introspection; and this certainly supports the view that the movement responses reflect an important part of people's overt behavior as manifested in their manner of dealing with their environment.

The three categories of the movement response are described thus by Piotrowski: "The M represents those tendencies of the patient which are most intimately connected with his total personality and which are most fully integrated into it". The M response is seen as representing the conception of life according to which the individual makes his adjustment to reality. Thus, the M response is seen as indicating the traits stabilizing the relationship between the individual and his environment. The FM response, being less integrated with the total personality, represents tendencies which originated early in life but have not fully matured. It is considered a less developed form of M which does not have the same stabilizing effect for the relationship between the individual and his environment. The presence of the m response is seen as an unfavorable sign. Piotrowski (1937)

sees the M and FM responses as pointing in varying degrees to reality, with the m response not pointing anywhere. The m response is seen as representing tendencies which are not expressed outwardly or constructively. These attitudes are thought of as being incompatible with the dominant trends of the personality.

Piotrowski hypothesized that one could say that the patient had not changed his basic attitudes since childhood, if the nature of the attitudes expressed in the three categories of the movement response was the same. He tested this hypothesis by comparing the conclusions drawn with its aid "with available data obtained by other means" in five case studies. The hypothesis was validated, but Piotrowski offered the caution that one must know how the other Rorschach components might influence the validity of conclusions drawn with respect to change in personality. However, it is certainly clear that he feels that any change in the movement response reflected a change in overt behavior as well.

Thus, there seems to be little doubt as to the importance of the movement response, but a good deal of doubt as to its sensitivity to/or reflection of the conscious overt behavior of the individual. Many studies have been done in this and related areas with mixed results.

Empirical Definitions of the M Response

Klein and Schlesinger (1951) conducted a study whose results appeared to support the position that the movement response was both sensitive to and a reflection of actual social behavior. They were interested in accounting for the ease or difficulty of experiencing apparent motion, and followed exploratory studies which had suggested that the ease of experiencing apparent movement depended on the S's tolerance for instability and change in the stimulus field. They used Rorschach criteria to divide the

S's into "form bound" and "form labile" groups. The S's were tested for apparent motion, and it was found that the actual number of M responses was far greater in the high scoring group. They felt that the Kinesthetic definitions of Rorschach (1942), Schachtel (1950), and Werner (1945) suggested the possibility of a direct link between the processes underlying M and those of apparent movement. Klein and Schlesinger saw the percept as being guided by checked motor responses, and M as a vicarious motor experience. Thus, they would appear to be implying that a change in M responses would reflect the way the individual would see and react to the world. This finding would seem to support Rorschach's original definition of the M response as being "form perception plus kinesthetic factors" (1942). Rappaport (1946) has said that he sees little evidence for a direct kinesthetic experience in M itself, but theorizes that it reflects a capacity for "delay of impulse discharge". Therefore, he would disagree with the conclusions of Klein and Schlesinger, but not with the idea that a change in M would reflect a change in overt behavior. Hammer and Jacks (1955) determined the relative frequency of extensor and flexor M in the records of rapists, and of imprisoned pedophiles whose offense was of a much more passive nature. They found a significant statistical difference between the two groups, with the extensor M responses being characteristic of the rapists and the flexor M responses associated with the pedophiles. Thus, their findings also tend to support the hypothesis of a direct reflection of overt observable behavior in the movement response.

Bernard Mirin (1955) decided to directly test the hypothesis that the nature of the M response was reflected directly in social behavior. The quality of the M responses of 30 hospitalized chronic schizophrenics was compared to their role taking behavior in an experimental situation. The S was re-

quired to discuss these differences and arrive at an acceptable solution. The M responses were scored in terms of self-assertive M's, compliant M's, and indecisive M's. The S's performance was rated in terms of his ability to cooperate in collaborating with the interlocutor in order to accomplish the task. Ss related to the interlocutor in a manner consistent with the type of M response produced previously. These results supported the experimental hypothesis, and supported the generalization that the quality of the M response is a direct reflection of the social role taking behavior when the person is ego involved in the social situation.

The M Response in Children

Levi and Kraemer (1952) agreed with the idea that the human movement response is one of the Rorschach's most important indices as to adjustment. However, they noted that this is an ability which is not usually present in younger children. They found that it was more normal for younger children to see movement in animal form. They decided to investigate to find whether disturbed children, those with special problems, also produced few M responses; and also, if there was a group of children who did produce a preponderance of M responses, what the significance of this was. The Es examined data on children who were seen at a guidance center over three years, ranging in age from four to ten years of age. It was found that only a small number of children produced a significantly greater number of M responses than was normal for their age. An examination of the case histories of the children showed that they all had a pattern of characteristics in common. These characteristics included temper tantrums, attention-getting behavior, difficulties in learning, creating classroom disturbances, some evidence of depression, some sexual trauma, either partial or marked rejection by one or both parents and a markedly overprotective mother.

Further investigation of the case histories gave Levi and Kraemer an indication that a particular type of personality developed from this pattern. It was inferred that the parents had not accepted the Ss' childish modes of behavior and had forced them to act in a more mature manner without ever having developed the emotional resources to do so. One aspect of the forcing of such behavior was hypothesized curtailment of physical activity. It was felt that the children regressed to such behavior as temper tantrums because of the difficulty they had encountered in expressing appropriate emotionality for their chronological age. Levi and Kraemer talk of the inverse M: FM ratio as an indication that the children were repressing their "instinctual" drives. They felt that the presence of many M responses might possibly be a defense which was an aid to repression, and the emotional outbursts were seen as a probable "release for energies dammed up by the repression". The greater number of M responses in the M: C ratio and the fact that they were always either passive or blocked was seen as indicating the incorporation of a punitive superego and a turning of aggression inward. The children's behavior was often of a punishment seeking nature. These findings provide definite support to the hypothesis of a direct relationship between the presence and nature of the M response and overt observable behavior.

Piotrowski (1947) has described children as usually beginning to produce M responses around the age of six when they are made to curb their motility and when with the beginning of school education and increased outside contacts they have an opportunity to develop much more realistic views of human relationships. The statement is made that curbed motility or a diminished freedom of self expression through the motor system furthers the development of the M response. It was noted that neglected, deprived, and

over-protected children tended to produce a larger number of M responses. Piotrowski felt that all of these children suffered from a limitation of their "spontaneous motor expression", and that they experienced it as depressing and uncomfortable. This would then seem to imply again an overt change in behavior, resulting in a change in the M response. Levi and Kraemer found that all of the characteristics of the pattern had to be present before this number and type of M response would occur, and this again would give weight to the idea of a direct link between the M response and overt behavior.

Prediction of Treatment Results

Efforts have been made to use the quality and number of the M response to select those subjects who would do well in psychiatric treatment. Koret and Rubin (1957) have reported a study in which they attempted to use various Rorschach signs to predict which individuals would show progress after a period of psychiatric casework ranging from one year to two and one-half years. The M response was found to be quite useful in making this prediction. The authors state that, "The difference in M production is . . . striking: four out of five produced no movement in the non-movement group, all subjects in the movement group produced one or more M responses". The range of M responses was 0-1 for the "non-movement group", and 1-10 for the "movement group". In this case it appears that the M response was an accurate reflection of the overt behavior which enabled the subjects in the movement group to obtain some benefit from psychiatric casework. Davids and Talmadge (1964) ran a similar study and again found that the M response played a significant role in the selection of these individuals who were able to benefit from psychiatric casework. Their results showed that there was a higher percentage of M responses in the records of those patients who showed

progress, and that the difference between the frequencies of M in the "movement" and "non-movement" group was highly significant. Thus, these studies not only demonstrate that the M response is a reflection of overt behavior, but also that it is a reflection of that type of behavior which is indicative of the accessibility of the adaptive mechanisms of the personality. Thus, more support is given to Piotrowski's conception of the movement response as directly reflecting social behavior.

Psychotherapy Outcome Studies

Rioch (1949) provides further support for the hypothesis that the movement response is a reflection of overt social behavior. She gave a series of two Rorschach tests to each of 36 patients to assess the results of psychotherapy. The therapists used psychoanalytically oriented intensive psychotherapy. Changes in content and feeling tone of the responses did occur and seemed to correspond with changes that were clinically observable. The animal movement response (FM) was the one which showed the most consistent decrease. This would coincide with Piotrowski's idea that the animal movement response is less integrated into the total personality, and decreases as maturity of the individual increases (1937).

Muench's (1947) outcome provides even more support for the hypothesis that the movement response is at least partly a reflection of overt observable social behavior. He used the Rorschach as one of his pre- and post-tests to ascertain the effect of non-directive psychotherapy on 12 clinic cases. These patients were treated by different clinicians who estimated the effectiveness of treatments without knowledge of the test data. The greatest differences between pre- and post-test data occurred in those cases judged as having profited most by treatment. According to the 22 Rorschach signs which were used, the greatest changes were: "a decrease in anxiety, a greater

degree of personal integration; a greater tendency towards doing the expected thing; and a better integrated emotional life, including greater emotional stability, control and adaptability". The movement response was involved in one of the four signs ($M + FC - (C + CF)$) that Muench found provided the most significant differences. Thus, M is once more seen at least as one of a number of signs which reflect a change in social behavior which in this case is associated with progress in therapy.

Carr's (1949) outcome study failed to support the hypothesis that the changes in the movement response reflected changes in outward behavior. He attempted to evaluate nine cases of non-directive psychotherapy through an evaluation of available client's Rorschach response records given before and after therapy. Carr admits being influenced in his procedure by Muench's study which used patterns or quantitative signs of adjustment based largely on the systems of Hertz (Unpublished) and Klopfer (1942). The records used in the present study were given and scored by a worker trained in Beck's procedure (1945, 1950), and a new system of signs based on Beck's scoring system but deviating from Muench's list only when scoring differences made it necessary. A list of 20 adjustment indicators was used including the M response. A quantitative evaluation of the nine protocols lead to the conclusion that differences between pre- and post-therapy protocols were not true and significant ones. Both an independent judge and the counselor of the individual case were asked to give a qualitative evaluation of the degree of success obtained in therapy. These evaluations did not agree with the quantitative evaluation in all cases, but Carr felt that "on the whole" they substantiated the conclusion that no significant differences following therapy are apparent on the nine pairs of Rorschach protocols. The Counselor rating indicated a

much higher degree of improvement following therapy, which would again reflect a failure of the movement response to reflect changes in overt social behavior.

The primary conclusion of Carr's study was that no significant differences were present in cases taken as a group, between pre- and post-therapy Rorschach protocols. He compared his study with Muench's and could not account for the discrepancy, although he had used three of his indicators and a good substitute for the fourth. Carr did not feel that there was a difference in the severity of their cases or the efficiency of the counselors involved. Also, the question of whether the post-therapy Rorschach came too soon following therapy to evidence changes that might appear more slowly was examined. Follow-up Rorschachs given from 8-16 months following the post-therapy protocols were available on five of the nine cases. The qualitative aspects were seen as having changed very little. Carr felt that this showed the limitations of the use of the Rorschach in evaluating the outcome of therapy, particularly when the evidence was based solely on quantitative results.

There would seem to be several points that should be made in the comparison of the studies by Muench and by Carr. One important thing is that nine of Muench's twelve cases were judged to be "successful," whereas only three of Carr's nine cases were judge so. Muench (1947) made it a point to analyze his data case by case, and only grouped it afterwards. The plain fact is that 75% of Muench's cases were judged successful as opposed to 33% of Carrs' cases. Therefore, it would seem that Carr should have expected to find no difference as a group since the majority of his cases were seen as having little positive reaction to therapy. This would not seem to give grounds to support the idea of the inability of the Rorschach to evaluate the outcome of therapy.

Actually, Carr's results seem to fit

Muench's results very well. In both cases, there was a high degree of correspondence between the clinical assessment of progress in therapy and the indications as gleaned from the Rorschach results. Also, there appears to be a distinction between the successful and the unsuccessful therapy case in terms of the M response. Thus, Carr seems to be belaboring the well-known point that the grouping of data leads to a loss of information. However, there seems to have been little attempt to reach any conclusions beyond this point. Therefore, although Carr admits to being influenced by Muench's study, he actually did not do many of the things which enabled Muench to attain his results. Rather, he seemed to be strictly testing the hypothesis that the fact of having received non-directive psychotherapy was something which should be reflected in the Rorschach responses. Carr does not find his greatest pre- and post-therapy Rorschach protocol differences in the three cases which the qualitative evaluation had judged most successful, and did again find that the M response was one of the most important reflections of this change in overt observable behavior.

Haimowitz (1948) ran a study involving 56 cases, with the aim of evaluating psychotherapy by means of pre- and post-therapy Rorschachs. She used a new method of analyzing Rorschach data, which was specifically designed to measure the types of changes most likely to take place in therapy. Slight favorable changes were found on nine of the ten scales, and a small but significant statistical difference between pre- and post-test from an overall point of view in the direction of better adjustment. A follow-up Rorschach was done on ten cases and these showed further changes in a favorable direction. The follow-up results were seen as being due primarily to rather marked change in six of the ten cases, with the remaining four staying the same as the post-test or regressing toward pre-test status. Here again is

an indication of a reflection in Rorschach signs of objective and observable social behavior. The follow-up results clearly emphasize the problem inherent in Carr's study and show that the group results must always be broken down before one can start to say anything definite about the individual patient and the effect of therapy.

Piotrowski and Schreiber (1951) also felt that the comparative Rorschach method would furnish a means of validating a clinical impression of "basic and deep characterological change resulting from psychotherapy." They applied this method to two different groups of Ss and felt that they had objectively demonstrated the difference in the characterological therapeutic results of psychoanalytically oriented psychotherapy in contrast to non-analytic (eclectic) psychotherapy. Twenty-three cases were divided into "Group A" and "Group B." The 13 cases in A had all undergone "successful (from the subjective and clinical standpoint) psychoanalytically oriented psychotherapy (POP), while the ten cases in B were treated by different psychiatrists successively and given sporadic psychotherapy, mainly of a ventilating and supporting nature (non-POP).

Both POP and non-POP groups appeared to be clinically improved, but the degree of improvement was seen as being "clearly greater in the POP group." The main sign of improvement in the non-POP group was an alleviation of anxiety. In the case of nearly all of the POP patients, the difference between the first and second Rorschach examination was seen as "usually striking," and an increase in the number of responses, "especially the most important responses (M, C, W)," was correlated with a marked decrease in depression.

Piotrowski and Schreiber saw the M response as denoting a "definite tendency, deeply embedded in the individual, to assume an unchanging attitude or attitudes when dealing with

others in matters recognized by the individual himself as vitally important to him" (1951). This conception is congruent with that expressed by Mirin (1955) as to the importance of ego involvement in role taking behavior and its reflection in the M response. Furthermore, this conception of the role in life is not seen as easily modifiable. All of the POP patients, but only four of the non-POP patients showed an increase in the number of M responses. The POP average at the outset was 3.8 and 9.8 at termination. The average of the non-POP group was 2.9 on both occasions.

Piotrowski and Schreiber saw the marked increase in M responses as a "numerical expression of the greatly increased creative imagination, of greater insight into the nature of the interpersonal relationships between the patient and his environment." The feeling was that persons who produced many M responses were more aware of the different ways in which people related to each other than those with few M responses. The disturbed children in Levi and Kraemer's (1952) study were forced to become aware of different ways of relating before mastering one style which was appropriate for their chronological age. The type of M responses which they produced indicated their discomfort with the attempt to relate in this manner. Thus, it would appear that the M response not only indicates awareness of different ways of relating with people, but that the type of M responses can communicate the attitude toward these other ways of relating to people.

In the previous study, all of the POP patients showed some increase in the number of extensor M; in the final records of seven of these patients all of the new M were extensor, while the number of compliant or passive M had decreased. In the remaining six cases, at least the majority of the new M responses were of the extensor type. Only four of the non-POP patients increased their number of extensor M,

while three actually lowered it. This change was seen as implying that the POP patients had decidedly improved their capacity to assert themselves and to think for themselves in terms of a freer, more spontaneous and more nearly complete self-expression; and that in the non-POP group this improvement occurred only in a minority of patients, and to a smaller degree, even when improvement did take place.

This view of the M response seems to have many implications as to the distinctions between psychoanalytically oriented psychotherapy and other types of therapy. However, here the data would seem to support very strongly the notion that overt behavior is directly reflected in the M response. Rorschach (1942) had the idea that the ordinal place in which a component appeared during an examination was one of several measures of the freedom with which the individual was inclined to express overtly the traits indicated by the component. That is, if the M responses appeared at the beginning, the patients would be considered uninhibited, while the appearance solely in the latter part of the examination would be ascribed to inhibition. Six of the POP group had produced their M responses in the first three cards during the first examination and did the same during the last examination. The other seven patients in the group advanced their first M response to an earlier card at the last testing, while there was no change in the ordinal place of the M responses in the non-POP group. If one were to accept Rorschach's hypothesis, this could be construed as further support of the reflection of direct action in the M response.

Piotrowski and Schreiber felt that any changes which occurred in the M responses were directional in trend and approached gradually what might be described as the "M-ideal." The more assertive the movement, the greater the spontaneity and freedom of the movement, and the larger the

number of body parts (ideally: the entire body) performing the movement, the more any specific M response was seen as approaching the desirable M-ideal: Full, friendly, constructive, and easily assertive actions performed by entire human beings of the same sex as that of the examined subject, without any suggestion of hesitation or effort, would signify the most desirable M response and would mark one end of a measuring scale of M. At the other extreme of the scale would be the most undesirable M responses; with complete restraint, without freedom or overt movement, representing parts of human beings or mutilated people and incapable of any purposeful action.

Examination of the FM responses again showed a differential change in the POP and non-POP group. It was noted that the reflection of behavior in the FM responses increased as the consciousness and self-control of the individual diminished (as a result of intoxication, extreme fatigue, sudden and acute anxiety, etc. (1950). The modifications of the FM response in the POP group differed from those of the M response. Most FM responses were seen as being assertive, with a much smaller percentage of the compliant type of movement than among the M responses. Those Ss who increased their number of assertive FM responses while in treatment, were reported as showing a decided rise in their vitality and liveliness (1950). This finding again appears to support the contention that the movement response reflects changes in the overt behavior.

The difference between the changes in the FM which appear in the middle period of POP is seen as being very conspicuous and significant. In the middle period, the increase of compliant, passive, or sado-masochistic FM was greater than before and after POP. It was felt that the patients responded with anxiety to the strong feelings concerning their past attitudes and experiences, which had been re-

pressed before. No significant changes were observed in the non-POP group in this respect. Again, there seems to be some support for the idea of a direct reflection of a movement response in overt behavior.

The inanimate movement response (m) also increased at first and either dropped out completely or decreased at the termination of treatment. The m responses were seen as being associated with the habit of psychological self-observation if they were limited to movements of inanimate objects or physical forces. The authors did not feel that it was "surprising" that the m responses intensified during the analysis, because they felt that it disclosed a conception of role in life which the individual felt to be very desirable but which he considered unattainable because of external difficulties or because of personal incapacity (1951). It was felt that these conceptions either became realizable as a result of augmented character strength following a successful psychoanalysis or that they disappear as being immature and exaggerated wishes. Thus, this data would also seem to support the idea of a direct reflection in the movement response of overt behavior.

CONCLUSION

Although a review of the literature does disclose a diversity of opinion as to the interpretation of the movement response (M, FM, m) in relation to overt observable behavior, the weight of opinion does appear to support the hypothesis of a direct relationship between the two phenomena. Piotrowski (1937) has made many valuable theoretical contributions in this area, and may be viewed as lending great support to the hypothesis of a direct reflection of overt observable behavior in the movement response. There is a general agreement throughout the literature that the movement response is an extremely valuable and useful concept, even though its interpretation may vary from one school of opinion to another.

One of the most important findings was contributed by Levi & Kraemer (1952). The usual interpretation of the human movement (M) response in the Rorschach record of an adult is positive in nature. However, Levi & Kraemer point out that among children, a preponderance of M over FM responses is usually an indicator of pathology rather than of health. Thus, their study points the way to an intriguing area of research which could involve the Rorschach test as a guide to the turning points in the stages of development. It raises such questions as: At what stage do the characteristics associated with the M response become adaptive rather than maladaptive? etc.

Furthermore, a variety of other studies (Levi & Kraemer, 1952; Mirin, 1955; and Piotrowski & Schreiber, 1951) provide evidence that not only the quantity but the quality of the movement response is extremely important to any attempt at interpretation of its meaning. In view of the importance of the concept of the movement response in the use of the Rorschach technique, there is a surprisingly small amount of research on its meaning. However, that research which has been carried out appears to have supported the idea that the movement response does tap a unitary concept and does provide a direct reflection of overt observable behavior. It seems quite likely that further research in this area will lead to an increased sensitivity and usefulness of the Rorschach technique. This would make possible a more detailed analysis of studies of the outcome of psychotherapy, among other thorny research problems in the clinical area.

REFERENCES

- Beck, S. J. *Rorschach's Test*, Vol. II, A variety of personality pictures. New York: Grune & Stratton, 1945.
- Beck, S. J. *Rorschach's Test*, (2nd ed.), Vol. 1. New York: Grune & Stratton, 1950.
- Carr, Arthur C. An evaluation of nine non-directive psychotherapy cases by means of the Rorschach. *J. consult. Psych.*, 1949, XIII, 196-205.
- Dauids, A. & Talmadge, M. Utility of the Rorschach in predicting movement in psychiatric casework. *J. consult. Psych.*, 1964, 28, 311-316.
- Haimowitz, Natalie Reader. An investigation into some personality changes occurring in individuals undergoing client-centered therapy. Unpublished doctoral dissertation, Univ. of Chicago, 1948.
- Hammer, E. F. & Jacks, I. A study of Rorschach flexor and extensor human movement responses. *J. clin. Psychol.*, 1955, 11, 63-67.
- Hertz, M. R. Rorschach scoring symbols. Unpublished study. Western Reserve Univ. Library, Cleveland, Ohio.
- Klein, G. S. & Schlesinger, H. J. Perceptual attitudes towards instability: I Prediction of apparent movement experiences from Rorschach responses. *J. Pers.*, 1951, 19, 289-302.
- Klopfer, B. & Kelley, D. M. *The Rorschach technique*. Yonkers (N. Y.): World Book Co., 1942.
- Klopfer, B. & Sender, S. A system of refined scoring symbols. *Rorschach Res. Exch.*, 1936, 1, 19-29.
- Koret, S. & Rubin, E. Z. Utilization of projective tests as a prediction of casework movement. *Amer. J. Orthopsychiat.*, 1957, 27, 365-374.
- Levi, J. & Kraemer, Doris. Significance of a preponderance of human movement responses in children below age ten. *J. proj. Tech.*, 1952, 16, 361-365.
- Mirin, B. The Rorschach human movement response and role-taking behavior. *J. nerv. ment. Dis.*, 1955, 122, 270-275.
- Muench, George A. An evaluation of non-directive psychotherapy by means of the Rorschach and other tests. *Psychol. Monogr.*, 1947, XIII, 1-163.
- Oberholzer, E. Cited in Rorschach H., *Psychodiagnostics*. Berne: Hans Huber, trans. Lemkau, T. & Kronenberg, B., 208, 1942.
- Phillips, L. & Smith, J. G. *Rorschach Interpretation: Advanced Techniques*. New York: Grune & Stratton, 1953.
- Piotrowski, Z. A. The M, FM, and m responses as indicators of changes in personality. *Rorschach Res. Exch.*, 1937, 1, 148-157.
- Piotrowski, Z. A. A Rorschach compendium. *Psychiat. Quart.*, p. 38, 1947.
- Piotrowski, Z. A. "A Rorschach Compendium, Revised and Enlarged". *Psychiat. Quart.*, 1950, XXIV, 543-596.
- Piotrowski, Z. A. and Schreiber, M. "Rorschach Perceptanalytic Measurement of Personality Changes During and After Intensive Psychoanalytically Oriented Psychotherapy." In: *Specialized Techniques in Psychotherapy*, ed. Bychowski, G. and Des-

- pert, J. Louise, New York: Basic Books, 1951.
- Rappaport, D., Schafey, R., & Gill, M. *Diagnostic Psychological Testing, II*, Chicago: Year Book Publishers, 1946.
- Rioch, Margaret J., The use of the Rorschach test in the assessment of change in patients under psychotherapy. *Psychiatry*, 1949, 12, 427-434.
- Rorschach, H., *Psychodiagnostics*, Berne: Hans Huber, trans. Lemkau, P. & Kronenberg, B., 1942.
- Schachtel, E. G., Projection and its relation to character attitudes and creativity in the kinesihetic responses. *Psychiatry*, 1950, 13, 69-100.
- Shalit, B., Effects of environmental stimulation on the M, FM, and m responses in the Rorschach. *J. Proj. Tech. & Pers. Assess.*, 1965, 29, 228-231.
- Werner, H., Motion and motion perception: A study on vicarious functioning. *J. Psychol.*, 1945, 19, 317-327.
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- Received February 26, 1966
Revision received May 18, 1966

Induction of Body Image Boundary Changes¹

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Summary: It was hypothesized that when subjects are induced to alter their distribution of attention to exterior vs. interior sites of their bodies they manifest corresponding changes in body image boundary definiteness (as measured by the Barrier score). Holtzman blots were administered on a test-retest basis to three female groups: 20 directing special attention to their skin and muscles; 21 focusing upon the body interior; and 20 who were not asked to direct attention to any specific body area. Subjects who focused upon exterior body areas increased their Barrier scores significantly more than subjects in the other two groups. Those who concentrated upon the body interior did not show a significant predicted drop in Barrier score. Generally, the findings indicate the possibility of manipulating body attitudes via special body attention exercises. They also support the view that body sensations find representation in projective images.

It has been shown that individuals differ in the degree to which they experience the boundary regions of their bodies as articulated and definite. Some perceive their boundaries as clearly demarcating them from their environs, whereas others feel only hazily separated from what is "out there." Fisher and Cleveland (1958) developed an index (Barrier score) to measure boundary definiteness. It is based on the number of images produced in response to an ink blot series which are characterized by peripheries with protective, containing, or decorative qualities (e.g., vase, man in armor, rock covered with moss, woman in costume, fancy dress). A variety of studies has demonstrated that the Barrier index can be scored with high objectivity and that it possesses adequate test-retest reliability. Furthermore, there are data indicating that it is meaningfully related to patterns of body sensation, psychosomatic symptomatology, and autonomic reactivity which involve differentiations between exterior vs. interior regions of the body (Fisher, 1963). Thus, individuals with definite boundaries are likely to be relatively more aware of exterior as compared to interior body sensations than are individuals with indefinite boundaries. They are also

likely to manifest more physiological arousal of exterior as compared to interior body sites. Indeed, the Barrier score has been conceptualized as representing a projection to ink blot stimuli of the degree to which the individual experiences the boundary regions of his body (viz., skin and muscle) as perceptually more prominent than his interior regions (e.g., heart and stomach). It should be noted that on the basis of the studies (Fisher, 1963) undertaken with the Barrier score it has become established that well differentiated boundaries are accompanied by an individuated style of behavior emphasizing achievement, goal orientation, self determination, and alert readiness for interaction with others. In addition, boundary differentiation has proven to have important relationships to stress tolerance and patterns of psychopathology.

There are difficulties in showing straightforwardly that the definiteness one ascribes to one's body boundaries is reflected in the properties one assigns to the peripheries of ink blot images. It is true that it has been demonstrated that the Barrier score is positively correlated with the difference between number of exterior and interior sensations (exterior minus interior) reported in a fixed time interval; the predominance of exterior over interior "symptoms" after ingesting a

¹This study was partially supported by U.S.P.H. Grant M-5761.

placebo; degree of selective superior recall for words pertaining to exterior as compared to interior body sensations; and the tendency to describe various affect states in terms of exterior rather than interior body sensations (Fisher & Fisher, 1964). While such findings support the position that the Barrier score is an index depicting a pattern of exterior vs. interior body experience, they are not as decisive as would be the demonstration that experimentally produced alterations in body experience result in predictable Barrier changes.

The prime intent of the present study was to test the proposition that increasing an individual's awareness of the boundary regions of his body will increase his Barrier score; whereas intensifying his awareness of interior body regions will decrease his Barrier score. More specifically it was predicted:

1. Subjects who are caused to become more aware of their muscles and skin (boundary) will show a greater increase in Barrier than subjects who are made more aware of their body interior or subjects who have not experienced a refocusing of body attention.

2. Subjects caused to become more aware of their body interior sectors will manifest a greater decrease in Barrier than subjects who have not been influenced to alter their body attention patterns.

Perhaps more basic than the particular hypotheses enumerated is the general question whether the body image boundary can be altered by manipulating the manner in which an individual distributes his attention to his body.

METHOD

Procedure

There were three separate procedures used in testing the above hypotheses, each involving an attempt to direct the subject's attention to certain types of body or non-body experiences:

Exterior

In order to measure the Barrier change produced by focus of attention upon skin and musculature, subjects in one group were initially administered the first 25 blots of Form B of the Holtzman series and then during, and following, a sequence of body concentration experiences were administered the first 25 blots of Holtzman Form A.

In order to direct the subject's attention to his skin and musculature he was first told, "The purpose of this experiment is to determine how much people can and do feel from the exteriors of their bodies, particularly the skin and body musculature. The first thing I would like you to do is concentrate your attention on your skin. Each time you have any sensation from your skin, report it to me and I will note it down — any sensation of itching, touch, tickling, etc. — any sensation whatsoever. Beginning when I tell you, concentrate your attention on your skin, on the outside of your body. Describe each sensation briefly, in one or two words, so as not to interrupt your concentration on your skin. If you have the same sensation more than once, report it more than once. Is that clear? Ready? Begin.

The next thing I would like you to do is similar, only it involves the body musculature. The muscles of the body are continuously making tiny movements, of which we are ordinarily unaware. Beginning when I tell you, I would like you to concentrate your entire attention on the muscles of the outside of your body and report to me each time you feel a muscle movement. As before, be brief so as not to interrupt your concentration. Just one or two words, saying what part of the body musculature is involved — arm, hand, neck, etc. — will suffice. Again, if you feel the same muscle movement more than once, report it more than once. Ready? Begin.

The next part of the experiment involves the skin again. I am going to mention a number of sensations to you which involve the skin. Some of them will be familiar; in that case, I would like you to concentrate for 30 seconds, and see if you can remember what the sensation I name is like. See if you can feel it in your memory, so to speak. If the sensation I name is unfamiliar, I would like you to concentrate your attention on your skin for 30 seconds and tell me if you can imagine what the sensation *would* be like. The first thing I would like you to feel is your skin as cold. Ready? Begin. (Repeat for: 'skin itching', 'skin as very soft', 'skin the way it feels when a breeze blows over it', 'skin as tight', 'skin as hot', 'skin as wet', 'skin as stiff or hard', 'tickling sensation on the skin', 'skin as loose'.)"

Holtzman Blots 1-12 of Form A were presented to the subject at this point.

"Now I would like you to do a few more things pertaining to sensations from the exterior of your body. These are six strips of paper. I would like you to rub each of them across the back of your hand, and then arrange them on the table in order from the roughest to the smoothest. You may rub each one across the back of your hand as many times as you like. Ready? Begin.

Now I am going to place before you these five bristles at the ends of five handles. By touching them to the skin of your palm — again, as many times each as you like — please arrange them on the table in order from the stiffest to the most flexible.

Which did you find it easier to distinguish, the papers or the bristles?"

Holtzman Blots 13-25 were then presented to the subject.

The time devoted to the body attention procedures was carefully monitored and held to 15 minutes. The same 15 minute limit applies to all of the other experimental conditions to be described below.

Interior

An analogous design was used for the procedure to direct the subject's attention to the interior of his body. Following his responses to the first series of Holtzman blots, he was told: "The purpose of this study is to find out how much people can and do feel from the insides of their bodies. I think you can understand that this is of some importance, medically. First of all, I'm going to show you some pictures of the inside of the human body. You can see the lungs, stomach, gall bladder, pancreas, large intestine, small intestines, heart, kidneys, great vessels inside the body — aorta, pulmonary artery, and so forth. (Organs are pointed out while named.)

I am going to mention to you the names of a number of organs inside your own body. What I'd like for you to do is focus your attention inside your body on the organ I name. I will give you 30 seconds after each one, and tell me if you are able to receive any physical sensation from it: any feeling of movement, weight, size, shape . . . any physical sensation whatsoever. Is that clear? The first organ will be your heart. For 30 seconds, beginning when I tell you, concentrate all your attention inside your body on your heart, and tell me — I will ask you after the 30 seconds are up—whether you could feel any physical sensation from your heart. (Wait 30 seconds.) All right; were you able to receive any physical sensations from your heart? (Repeat for stomach, lungs, intestines, liver, and kidneys.)

The next thing I'm going to do is mention a number of bodily processes to you. These are events which people may feel take place inside their bodies. Some of them will be familiar to you; you will have felt them take place inside your own body in the past. What I would like you to do is for 30 seconds — I will give you 30 seconds after each event I name — to concentrate on the sensation which I have mentioned. Even if you are not feeling it now, try to re-create the sensa-

tion; try to remember the feeling I name, and concentrate on it for 30 seconds. All right? Others will not be familiar to you. You may never have felt them take place inside your body. In that case, what I'd like you to do is concentrate your attention on the organ or part of the inside of your body involved and tell me if you can imagine what it *would* be like to feel the sensation I have named, if you did feel it. Is that clear? All right, the first thing I'd like you to feel is your stomach as very empty. Ready. Begin now. (Wait 30 seconds.) All right; were you able to feel that? (If subject is unsure, elicit any positive response and mark it down as 'yes'.) (Repeat for 'heart producing an extra heavy beat, deep inside your body'; 'a tickling sensation, deep in your chest'; 'intestinal movement, a feeling of movement in your intestines'; 'the blood flowing through the arteries and veins, deep inside your body'; 'your stomach contracted'; 'your liver working, your liver functioning'; 'a sensation from deep inside your bones, deep in your body'; 'a filled feeling, deep in your abdomen'.)

The next thing you are going to be doing is monitoring sensations from your own heart. I am going to give you a pad and a pencil. What I want you to do is for two minutes — beginning when I tell you — to again concentrate all your attention on your heart. Each time you receive any physical sensation from your heart — any beat, any feeling of movement, weight, size, or shape — make a mark on the pad with the pencil. Make a mark for each sensation you have. All right? And during these two minutes, try to concentrate also on what the sensations feel like, because when two minutes are over, I'm going to ask you to describe them to me. Ready? Begin now. (Wait two minutes.) All right, what sorts of sensations did you have?"

Subject was asked at this point to respond to 12 of the Holtzman blots. Then he was told: "Now I'd like you

to do some more observation of the inside of your body. I'm going to give you some of this water in a cup. (Water very cold.) Take one mouthful and swallow it very slowly, concentrating on everything you can feel inside your body while you are swallowing it and after you swallow it. Then, when you are ready, describe to me what you could feel."

(Pour some of room temperature water into a cup.) "Now I'd like you to repeat that, paying particular attention to the last things you could feel — where you felt the water last, and for how long you could feel it. (Question until two minutes have expired.)

Now think over the various parts of the insides of your body, and tell me from what particular part you ordinarily receive the most sensation. Now, once again, think over the various parts of the insides of your body and tell me from which particular part you ordinarily receive the least sensation."

Subject was then requested to respond to Holtzman blots 13-25.

Control (Non-Body)

A third procedure was introduced for control purposes which involved test-retest with the Holtzman blots, with intervening experiences that duplicated the amount and character of the subject-experimenter interaction occurring in the other two procedures, but without any references to body sensations. Following the administration of the first set of Holtzman blots, the subject was told:

"I am going to show you some pictures in this book (24 pictures of various landscapes and non-human objects). I would like you to study each one for 20 seconds. When the 20 seconds are up, simply tell me whether you have ever before seen anything similar to what is shown in the picture. A response of 'yes' or 'no' will be sufficient. Then turn to the next picture. In other words, I will indicate to you when 20 seconds have elapsed,

TABLE I—Means and Standard Deviations for Test-Retest Barrier Scores in the Exterior, Interior, and Control Groups and Significance of Differences

| Groups | Initial Barrier | | Retest Barrier | | Diff. |
|-------------------|-----------------|----------|----------------|----------|--------------------|
| | M | σ | M | σ | |
| Exterior (N = 20) | 5.00 | 2.10 | 6.60 | 3.20 | +1.60 ^a |
| Interior (N = 21) | 5.90 | 3.28 | 5.70 | 3.03 | — .20 |
| Control (N = 20) | 5.45 | 3.14 | 5.70 | 2.76 | + .25 |

^at for Exterior vs. Interior = 2.00 ($p < .05$, one-tail test)

t for Exterior vs. Control = 1.84 ($p < .05$, one-tail test)

t for Interior vs. Control = .60 (not significant)

and you will say 'yes' or 'no' and turn to the next picture.

During the next three minutes, beginning when I tell you, I would like you to name all the cities, towns or villages you can remember ever having been in, in your life. If you are still naming at the end of three minutes, I will ask you to stop.

I am going to ask you your favorites in a number of categories. Some of these may be difficult for you, in that you may never have thought of having a favorite; or, you may have a number of favorites. In any case, I'd like you to decide on one thing in each category that you like as well or better than any other you can think of right now. Consider your choice; I don't necessarily want your first impression. The first thing I'd like you to tell me is your favorite musical instrument. (Repeat for color, composer, artist, author, song, book, movie, flower.)"

Cards 1-12 of the next Holtzman set were then administered. Further instruction to the subject followed: "I'd like you to go through this stack of cards, one card at a time. Arrange the cards into two piles: in one pile put the cards you like, in the other, the cards you don't like. (Barron Simplicity-Complexity cards.)

I'd like you to consider a moment and tell me the best course you've ever taken in school. (Or best job, if subject has had no recent schooling.) Now would you tell me a little bit about why you liked it? (Question mildly, if necessary, until five minutes.)"

Holtzman Blots 13-25 were admin-

istered.

All Holtzman protocols were scored blindly without any knowledge as to whether they were derived from first or second testings.

Subjects

The subjects were all women who were recruited by payment of a fee. There were 20, 21, and 20 in the Exterior, Interior, and Control groups respectively. The corresponding median ages in the groups were 20, 20, and 21; and the median educational levels 15, 15, and 16 years.

RESULTS

The initial Barrier means in the Exterior, Interior, and Control groups were respectively 5.0, 5.9, and 5.5. None of these means differ significantly from each other. As indicated in Table I, the Exterior group showed a significantly greater test-retest Barrier increase than the Interior group ($p < .05$, one tail test) and the Control group ($p < .05$, one tail test). The Interior and Control groups did not differ significantly. It is noteworthy that the Interior group was the only one to show a test-retest decrease in Barrier.

The correlations presented in Table

TABLE II—Product-Moment Correlations of Test-Retest Barrier Scores within Each Group

| Groups | r |
|-------------------|--------------------------|
| Exterior (N = 20) | .49 ^a |
| Interior (N = 21) | .58 ^b |
| Control (N = 20) | .85 ^c |
| | ^a $p < .05$ |
| | ^b $p < .01$ |
| | ^c $p < .0001$ |

II point up an increasing degree of test-retest correlation in the sequence of Exterior, Interior, and Control conditions. The lowest test-retest correlation is found in the Exterior condition and the highest for the Control condition.

DISCUSSION

As hypothesized, subjects who focused their attention on the boundary regions of their bodies increased their Barrier scores significantly more than did those who directed their attention to interior body sites or who did not alter their pattern of body attention. Further, as hypothesized, the subjects who focused attention on the body interior showed a tendency to decrease their Barrier scores, although the decrease was not significantly different from the small increase in Barrier which occurred in the Control group. These findings indicate grossly that the Barrier score does reflect the manner in which an individual is distributing his attention to exterior vs. interior body sectors.

It is interesting that the most effective method for inducing change was that involving focus upon the skin and musculature. One wonders why interior focus proved less effective in altering the boundary. Subjects who participated in the Interior condition were obviously just as interested and involved with the experimental procedures (perhaps more so) than those observed in the Exterior condition. This raises the obvious possibility that it may be intrinsically more difficult to force a shift in attention from the body exterior to the interior than from the interior to the exterior. Indeed, in a previous study (Fisher & Fisher, 1964) in which reports of frequency of exterior and interior body sensations were obtained from normal subjects, it was found in two samples that it is the norm to be relatively more aware of the body exterior than the interior.

The results constitute the most direct evidence so far obtained that the Barrier score is a function of body experience. Also, they provide the first indication that it may be possible to alter the boundary (and perhaps other body image dimensions) by means of systematic procedures which induce the individual to shift his usual ways of experiencing his body. It is true that previous findings by Reitman and Cleveland (1964) concerning the effects of sensory isolation upon the boundary and also Des Laurier's (1962) accounts of procedures for strengthening the boundaries of schizophrenic children suggested the possibility of producing boundary changes.

Incidentally, the fact that it was possible to alter a category of response to ink blot stimuli by manipulating body experiences also supports the view presented by one of the authors elsewhere (Fisher, 1965) that body sensations may play an unsuspectedly significant role in shaping projective imagery.

REFERENCES

- Des Lauriers, A. M. *The experience of reality in childhood schizophrenia*. New York: International Universities Press, 1962.
- Fisher, S., and Cleveland, S. E. *Body image and personality*. Princeton: Van Nostrand, 1958.
- Fisher, S., and Fisher, Rhoda L. Body boundaries and patterns of body perception. *J. abnorm. soc. Psychol.*, 1964, 68, 255-262.
- Fisher, S. A further appraisal of the body boundary concept. *J. consult. Psychol.*, 1963, 27, 62-74.
- Fisher, S. Body sensation and perception of projective stimuli. *J. consult. Psychol.*, 1965, 29, 135-138.
- Reitman, E. E., and Cleveland, S. E. Changes in body image following sensory deprivation in schizophrenic and control groups. *J. abnorm. soc. Psychol.*, 1964, 68, 168-176.

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Received January 17, 1966

Body Boundary and Achievement Behavior¹

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Summary: Positive relationships were predicted between boundary definiteness and achievement behavior in a group of sixth grade children. Boundary definiteness was measured by means of the Fisher-Cleveland Barrier score. Achievement behavior was measured by the degree of over-achievement in school and also by teachers' evaluations of trait characteristics. In boys the Barrier score was positively correlated with both degree of school over-achievement and number of achievement oriented traits. But in girls the Barrier score was significantly related only to amount of school over-achievement.

A relationship between body boundary definiteness and achievement orientation has been demonstrated in a number of studies (e.g. Fisher & Cleveland, 1958). Boundary definiteness is measured by a dimension called the Barrier score. This score is derived from percepts given in response to ink blot stimuli. Fisher and Cleveland (1958) observed that individuals with definite boundaries can tolerate stress well, are self-steering in their behavior, and motivated toward high achievement. One study demonstrated the relationship between clear boundaries (as defined by the Fisher-Cleveland score) and achievement level in terms of classroom behavior. It was found that those individuals who volunteered to do a term paper to raise their grade were predominantly well bounded subjects. Another study (Fisher & Cleveland, 1958), also using college students as subjects, compared the boundary score with n Achievement scores (McClelland, Atkinson, Clark, & Lowell, 1953). A significant positive relationship was found between boundary definiteness and n Achievement. Recently Shipman (1965) reported that achievement drive, as measured by the number of achievement words from Gough's Adjective Check-list which subjects chose as self descriptive, was significantly correlated with the Fisher-Cleveland boundary score. However, no relation was found between boundary definiteness

and the Achievement dimension of the Edward's Preference Schedule.

The findings of these and other studies suggest that a relationship between boundary score and achievement orientation might also be pertinent to the motivation and performance of children. It was the primary purpose of the present project to test the relationships between Barrier score and achievement behavior in younger children. A group of sixth grade elementary school children was studied. It was hypothesized that the more definite a child's boundaries the higher would be his achievement behavior. A second purpose of the study was to investigate the relationship between teachers' rating of traits usually associated with achievement and the child's boundary attributes.

PROCEDURE

The following indices were obtained for each S:

1. *Barrier score.* The index was obtained from the administration of the Rorschach ink blot series. It represents an evaluation of the degree to which the individual pictures his boundaries as definite rather than indefinite and vague. Subjects in the experiment were administered the Rorschach in their regular classroom on a group basis. A total of 20 responses were required from each child. To arrive at this total the children were required to give two responses to each of the ten plates. The responses were categorized according to the

¹This study was partially supported by N.I.M.H. grant MH-01475.

Fisher-Cleveland Barrier scoring procedures. The Barrier score represents an evaluation of the degree to which the individual pictures the boundaries of his body as definite and firm as contrasted to indefinite and weak. The scoring of an individual's Rorschach protocol for this variable is based on a count of the number of percepts in which unusual covering, containing, decorative, or protective qualities are ascribed to the bounding peripheries. Such responses as the following would exemplify the category: 'cave with rocky walls', 'knight in armor', 'animal with striped fur', 'fort with cement walls' . . . The larger the Barrier score the greater is the definiteness of the body image boundaries. (Fisher & Cleveland, 1958). The scoring system has been shown to have high objectivity. Furthermore, adequate test-retest reliability has been demonstrated. Detailed scoring norms may be found elsewhere. (Fisher & Cleveland, 1958).

2. *California Test of Mental Maturities (CTMM)* (Sullivan, Clark & Ties, 1957)

A test of intelligence was administered to each classroom of children at the close of the academic year. The total IQ derived from the CTMM was obtained.

3. *Index of Relative Achievement.*

At the end of the academic year the grades each child received as a summary of his performance for that school year was obtained. Children received letter grades in the following areas: reading, English, spelling, penmanship, arithmetic, social studies, science, health and safety, physical education, art, music. Each grade was converted to a score so that "A" equaled 4, "B" equaled 3, to "F" equaled 0. Each child's final report card level was the average of such scores.

A score was then derived that represented amount of over-achievement. The actual over-achievement score was calculated in the following

manner: (1) Total average report card grades were arranged in rank order from lowest average grade to highest average grade. (2) CTMM IQ was ranked from lowest IQ to highest IQ. (3) For each child IQ rank was subtracted from average report card grade rank. The higher the average grade relative to the IQ the more it was assumed that the child tended toward over-achievement.

4. *Adjective Check-List.*

From Gough's list (Gough and Heilbrun) of 284 items, 20 words were selected. Ten adjectives described the outlook of high achievers, e.g., inventive, industrious, enthusiastic, determined, ingenious, forceful, enterprising, energetic, efficient, dissatisfied; and ten described traits indicative of low achievement orientation, e.g., dependent, lazy, forgetful, easy going, infantile, irresponsible, slow, simple, slipshod, unambitious. The classroom teachers² checked the ten adjectives on the list which best described each child. Number of adjectives checked by the teacher falling in the achievement oriented category was counted. The total number of achievement adjectives checked by the teacher was assumed to represent the child's typical achievement oriented behavior in his social relations.

Subjects. There were 49 white Ss of whom 30 were boys and 19 girls. They were all in the sixth grade in a public elementary school.

RESULTS

As measured by Chi-square the Barrier score was significantly and positively correlated with degree of school "over-achievement" ($\chi^2=7.8$, $p<.01$, one-tailed test).

A second analysis compared Barrier score with the number of achieving adjectives checked for each child by his teacher. An examination of the

²Acknowledgement and thanks to Mr. H. T. Clift and Mrs. E. Feeley, classroom teachers, whose time and cooperation made this study possible.

TABLE I — Chi-square Analysis of the Relationship between Over-Achievement and Barrier Score

| | Achievement Index | | |
|---------|-------------------|--------|------|
| | Low | Middle | High |
| High | 6 | 8 | 13 |
| Barrier | | | |
| Low | 9 | 10 | 5 |

$\chi^2 = 7.8, df = 2,$
 $p < .01$

data indicated there was a sex difference between boys and girls in terms of the rated behaviors. The boys and the girls were therefore evaluated separately. For the boys, the Barrier score and number of achievement adjectives checked by the teacher were significantly and positively related ($\chi^2=11.1, p<.001$, one-tailed test).

TABLE II — Chi-square Analysis of the Relationship in Boys' Group between Number of Achievement Traits Checked by Teacher and Barrier Score

| | Achievement Traits | |
|---------|--------------------|------|
| | Low | High |
| High | 2 | 12 |
| Barrier | | |
| Low | 12 | 4 |

$\chi^2 = 11.1, p < .001$

A comparison of the Barrier score with number of achieving adjectives checked by teachers for the girl Ss indicated a largely chance relationship ($\chi^2=2.5, p>.10$).

TABLE III — Chi-square Analysis of the Relationship in Girls' Group between Achievement Traits Checked by Teacher and Barrier Score

| | Achievement Traits | |
|---------|--------------------|------|
| | Low | High |
| High | 7 | 3 |
| Barrier | | |
| Low | 3 | 6 |

$\chi^2 = 2.5, p>.10$

INTERPRETATIONS

Past studies have shown a relationship between body image and achievement behavior in college aged populations (Fisher and Cleveland, 1958). The present investigation demon-

strated that the same kinds of relationships exist in a group of elementary school students. From the evidence it seems clear that achievement motivated behavior is related to definiteness of body boundaries. Children who have a clearly delineated body image boundary perform in an achievement oriented way in the classroom. One might speculate that the sense of boundedness, of being differentiated, gives the child a feeling of individuality and an ability to behave in a self steering manner (Fisher and Cleveland, 1958). It seems logical then to assume that individuality (as it is defined by one's body boundary score) is an important component in the ability to achieve.

Boundary definiteness does predict achievement drive as defined by school attainment in both sexes; but at a second level, that of social behavior, the relationships are different for boys and girls. Well bounded boys were high achievers in school and also impressed teachers as possessing forceful, achievement oriented traits. In other words, there is a consistency in the achievement style of boys. Both academically and socially the well bounded boy behaves in a manner associated with his achievement orientation. Well boundedness in girls goes with high achievement in academic behavior but is not similarly represented in her general trait behavior as it is perceived by the teacher. The fact that achievement drive expresses itself less consistently in the behavior of females than males has been noted by others (French and Lesser, 1964); (Heilbrun, 1963); (Lesser, Kravitz, and Packard, 1963).

REFERENCES

- Atkinson, J. W. *Motives in fantasy, action, and society*. Princeton: Van Nostrand, 1958.
- Fisher, S., & Cleveland, S. E. *Body image and personality*. Princeton, New Jersey: Van Nostrand, 1958.
- French, E. G., & Lesser, G. Some characteristics of the achievement motive in women. *J. abnorm. soc. Psychol.*, 1964, 68, 119-128.
- Gough, H. G., & Heilbrun, A. B. *Joint man-*

- ual for the adjective check-list and the need scales for the ACL. Palo Alto, Calif.: Consulting Psychologists Press.
- Heilbrun, A. B. Sex role identity and achievement motivation. *Psychol. Reports*, 1963, 12, 483-490.
- Lesser, G. S., Krawitz, R. N., & Packard, R. Experimental arousal of achievement motivation in adolescent girls. *J. abnorm. soc. Psychol.*, 1963, 66, 59-66.
- McClelland, D., Atkinson, J. W., Clark, R. A., & Lowell, E. L. *The achievement motive*. New York: Appleton Century Crofts, 1953.
- Shipman, W. Personality traits associated with body-image boundary concern. Proceedings of the 73rd annual convention of the Amer. Psychol. Assoc., 1965.
- Sullivan, E. T., Clark, W. W., Tiegs, E. W. *California test of mental maturities*, California Test Bureau, 1936, 1957.
- Veroff, J., Wilcox, S., & Atkinson, J. W. The achievement motive in high school and college women. *J. abnorm. soc. Psychol.*, 1953, 48, 108-119.
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Sex of Respondent and Rorschach M Production

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Summary: The Rorschach was administered in group form to 43 male and 49 female undergraduates. The females produced more human movement (M) responses than did the males ($p < .025$). The obtained sex difference in M production was interpreted as arising from differential sex-role expectations concerning the use of fantasy.

This report of an incidental finding arising from an investigation of the Rorschach human movement (M) response as related to personal adjustment was deemed advisable in view of the paucity of information available on sex differences in Rorschach response. In the sole study addressed to this problem, Felzer (1955) tested 100 male and 100 female undergraduates; while the female sample tended to give more M than the males, the difference was not statistically significant.

Method — The Rorschach was administered in group form to 43 male and 49 female undergraduates. Chromatic slides of the Rorschach blots were projected for one-minute periods during which the Ss recorded their percepts. Following presentation of the complete Rorschach series, the Ss were required to delineate their percepts on Rorschach location charts with the aid of one-minute re-exposures of the slides.

Results — Since many Ss on occasion gave single responses to blots, only first responses were used in data analysis. Responses were scored for M according to Beck's (1961) criteria, with two independent judges reaching 97% agreement on 20 randomly selected cases. With respect to sex of S and production of M, it was found that males gave a mean of 1.30 M, while females produced a mean of 2.10 M ($z = 2.28$, $p < .025$, two-tailed). This result is in agreement with the trend found in Felzer's (1955) data. It was further determined that the greater M produced by the females was determined primarily by more frequent

perception of human movement rather than by any tendency to perceive human content more frequently.

Some ancillary results were also of interest. First, the number of M — was very small (6 and 7 for males and females, respectively), and the males and females did not differ significantly on either the Barron Egostrength Scale or the Taylor Manifest Anxiety Scale. Second, the males and females differed significantly with respect to their ratings of the 10 Kuder Preference Record occupational categories as "most interesting" ($X^2 = 20.4$, $p < .02$, two-tailed). The most interesting category for males was "outdoor" while females rated "artistic" and "social" as holding greatest interest.

Discussion — Since the Rorschach M response is frequently interpreted as indicative of rich fantasy life, the greater production of M by females makes considerable sense. The culturally more restrictive role of the female would seem to drive its occupant into fantasy as a means of wish fulfillment, whereas the less binding male role affords more direct avenues of gratification. One need look only to current mores governing biological sexuality for illustration. Further, it would seem that indulgence in fantasy meets with greater social approval for the female than for the male. The male stereotype demands activity, while reverie is certainly permissible, if not actually encouraged, in the case of the female. It may be noted that the occupational preferences recorded by the sexes are clearly consonant with an assumption of adherence to sex role on the part of the respondents, the

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males preferring "outdoor" activities, and the females endorsing "artistic" and "social" endeavors. Thus it is suggested that the obtained sex difference in M production may stem from differential sex-role expectations concerning the use of fantasy.

REFERENCES

Beck, S. J. *Rorschach's test*. Vol. 1 *Basic proc-*

esses. (3rd ed.) New York: Grune and Stratton, 1961.

Felzer, S. B. A statistical study of sex differences on the Rorschach. *J. proj. Tech.*, 1955, 19, 382-386.

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Received November 4, 1965

Revision received April 16, 1966

The Human Content Response in the Holtzman Inkblot Technique¹

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Summary: The purpose of this study was to investigate the meaning of the human content response (H-response) in the Holtzman Inkblot Technique (HIT). Specifically, the study focused on testing four hypotheses about the number of H-responses. It was predicted that the number of H-responses varies directly with social interest and empathy and inversely with social isolation and functional pathology. Results suggested that only social interest and functional pathology are related to H-response production. It was concluded that the other two hypotheses were not definitely disproved but rather that they were inadequately tested due to the homogeneity of the criterion groups.

This investigation was an exploratory study of the human content response (H-response) in the Holtzman Inkblot Technique (HIT). There has been no study to date dealing exclusively with the H-response of the HIT. In view of the HIT's recent origin this is not surprising. What is surprising, however, is that the H-response has, for the most part, escaped the Rorschach researcher's inquisitive eye. A review of Rorschach literature reveals only one study which deals exclusively with the H-response. Holtzman and Pearce (1947), studying the personal meaning of the H-response, demonstrated that unique aspects of H-responses can be related to personal experiences of an individual; however, they did not derive any general principles about the H-response. Several investigators (Borgatta and Eschenbach, 1955; Holtzman, 1950; Lange, 1959; Vayhinger, 1956) have studied the significance of the H-response while considering other Rorschach variables as well. Their findings do not support current Rorschach theory.

The present study was an attempt to test several theoretical speculations about the H-response which have been offered by various Rorschach authori-

ties. More specifically, the following four hypotheses were tested.

- H₁: The number of H-responses varies inversely with social isolation.
- H₂: The number of H-responses varies directly with capacity for empathy.
- H₃: The number of H-responses varies directly with social interest.
- H₄: The number of H-responses varies inversely with pathology.

With regard to Hypothesis 1, Phillips and Smith (1953) indicated that the number of H-responses varies inversely with social isolation. Rapaport (1946), on the other hand, implies that there is no relationship between the number of H-responses and social isolation. He said that the number of H-responses varies directly with interest in others, but that interest does not necessarily imply a capacity for warm interpersonal relationships. In testing Hypothesis 1 the writers attempted to test and compare these two contradictory theoretical positions. More specifically, in accordance with the Phillips and Smith position, it was predicted that the number of H-responses produced by social isolates would be fewer than those produced by more socially popular Ss.

Speculations for Hypothesis 2 come from Klopfer, Ainsworth, Klopfer,

¹A doctoral dissertation presented to Purdue University, 1963. A more detailed report of this study in mimeographed form may be obtained from the authors free of charge.

and Holt (1954) and Phillips and Smith (1953), Klopfer (p. 264) indicated that the number of H-responses varies directly with the "capacity for empathic relationships." Similarly, Phillips and Smith suggested that the number of H-responses varies directly with sensitivity to others. The writers make little distinction between capacity for empathy and sensitivity to others; accordingly, these Rorschach authorities are expressing the same hypothesis. Hypothesis 2 indicates, therefore, that there will be a positive relationship between the number of H-responses and capacity for empathy.

Hypothesis 3 derives from the speculations of Phillips and Smith (1953), Rapaport (1946) and Piotrowski (1957), who have suggested that the number of H-responses varies directly with the amount of interest in other human beings.

Hypothesis 4 owes its formulation to the speculations of Phillips and Smith (1953), Piotrowski (1957) and to data collected by Lange (1959) and reanalyzed by the writers. Phillips and Smith (p. 183) stated that "the effect of Pathology is to reduce the number of human contents which is developed." Likewise, Piotrowski (p. 344) has indicated, "psychotics who are much less interested in the motivation of others than are normals and neurotics have a low H percent." In a preliminary effort to test hypothesis 4 the writers reanalyzed data collected by Lange (1959). Since Lange studied both hospitalized and college groups, it was possible for the writers to compare these groups with respect to their H-response percentages. Lange's college group produced an H percent which was significantly (.01 level) larger than that of the patient group. This finding was thought to be encouraging, but not unequivocal, since important variables such as age and intelligence were not controlled. Data collected by Holtzman (Holtzman, Thorpe, Swartz, & Herron, 1961) indicated that chronic

schizophrenics produce very few H-responses. In addition, his data also suggested that age and intelligence vary directly with number of H-responses.

PROCEDURE

Subjects

Subjects for the testing of Hypotheses 1, 2, and 3 were students at a small, private, liberal arts college in New England. Since the college is very selective and private with a rather high tuition, the college draws students who are likely to come from the upper socio-economic levels. Hence, it may be concluded that the majority of subjects in this project represent a relatively homogenous group with respect to intelligence and socio-economic background. This homogeneity may have had some adverse effects inasmuch as it did not allow for adequate differentiation within criterion measures.

Subjects used in testing Hypothesis 4 were a group of hospitalized patients and a group of firemen. These two groups will be described in greater detail below.

Measuring the H-response

Since the means, standard deviations and patterns of intercorrelations are the same for individual and group administration (Holtzman, Abbot, Reinehr, & Moseley, 1963), the latter, for reasons of expediency, was employed. All three kinds of human content responses, human, human detail, and human-like, received an equal weight of one credit. This method of scoring is in accordance with standard Rorschach methods, but is contrary to the technique used by Holtzman, *et al.* (1961), who gives one or two credits, depending upon the nature of the response. Since the writers obtained a .94 correlation between the two scoring systems and since the hypotheses being tested involved statements about the number of H-responses rather than about weighted H-response scores, the writers chose to disregard the Holtzman scoring

system in favor of the Rorschach system.

Reliability of the H-response

Prior to testing the four hypotheses, an alternate form reliability check with a one week test-retest interval was made on the H-response using 40 male college students as subjects. The reliability coefficient as well as other statistics such as the mean, standard deviation and intercorrelational patterns were compared to those determined by Holtzman.

Procedure for Testing Hypotheses 1 and 2

The same subjects were used in testing Hypotheses 1 and 2. They included three groups (A, B, and C) of 15 college students, or a total of 45 college students altogether. Groups A, B and C consisted of students who had lived together in the same fraternity house for 3, 2 and 1 years, respectively.

The three groups were tested separately and each of the subjects was asked to do three tasks, which, taken together, took approximately 60 minutes. The first task involved group administration of the HIT. The second task, a sociometric questionnaire, which required the subjects to indicate roommate preferences, served as the criterion for social isolation. The third task, a sociometric pair-comparison inventory designed to measure empathy, contained all possible pairs of last names of the subjects in the group. After listening to and discussing a definition of empathy the subjects were instructed to indicate the most empathic person for each pair by underlining one name in every item of the inventory. Both hypotheses were put to a statistical test by employing a rank-difference correlation between number of H-responses and social isolation scores (for Hypothesis 1) and empathy scores (for Hypothesis 2).

Procedure for Testing Hypothesis 3

The Ss, sixty male college students taken from sophomore, junior, and

senior classes, included a few of the Ss who participated in the testing of Hypotheses 1 and 2. They were selected on the basis of their scores on the Strong Vocational Interest Test-Men (Strong, 1938).

The Strong was administered to 200 Ss, and their tests were scored and profiles determined. From the 200 profiles 60 were selected on the basis that they reflected one of three different levels of social interest. Twenty profiles represented high social interest which was operationally defined as high scores in areas 5 and 9 (social service and business contact, respectively) and low scores in areas 2, 3, and 4 (science, production manager, and technical work, respectively). Another set of twenty profiles represented low social interest, which was operationally defined as low scores in areas 5 and 9 and high scores in areas 2, 3, and 4. A third group of twenty profiles, which represented medium social interest, had few peaks or valleys.

The HIT was administered to the 60 Ss whose profiles had been selected, and the Kruskal-Wallis H-statistic was used to test for significant differences of H-responding among the three groups.

Procedure for Testing Hypothesis 4

Two groups of Ss, very different from those used in testing the previous hypotheses, participated in the testing of Hypothesis 4. The test of this hypothesis involved a comparison of H-response productivity in normal and pathological groups. The normal group consisted of 21 firemen, ranging in age from 23 to 55, who volunteered to participate in the study. The pathological group consisted of 20 non-organic, non-paranoid, chronically hospitalized, male schizophrenics, ranging in age from 21 to 57. Organic patients were excluded from the patient group in order to delimit the definition of pathology to functional pathology. Paranoid schizophrenics also were excluded because they are

known to produce an abundance of human detail responses such as "eyes," "faces," etc. (DuBrin, 1962).

Both the HIT and the Information subtest of the Wechsler Adult Intelligence Scale were administered to all subjects. The latter was administered since intelligence as well as age has been shown to be directly related to H-response productivity (Holtzman *et al.*, 1963). The Mann-Whitney U-test was the statistical technique used to test for differences in H-production by the two groups.

RESULTS

Reliability of H-Response Results

The alternate form reliability test with a week interval yielded a rank-difference correlation coefficient of .53. Although significant at the .01 level, this figure is somewhat below those reported by Holtzman *et al.* (1963).

The mean number of H-responses for the 126 college students who participated in this project was 15.02. The standard deviation was 5.26. It is not appropriate to compare these figures in their present form with those of Holtzman since scoring procedures were different for the two cases. By using a correction factor (multiply by 1.7), however, it was possible to make the comparison. The corrected mean of 25.53 and the corrected standard deviation of 8.94 were in very close agreement with those of Holtzman's college group, which had a mean of 26.00 and standard deviation of 10.11.

Hypotheses 1 and 2

The findings with respect to Hypotheses 1 and 2 are reported together since the subjects were the same in both instances.

The subjects demonstrated substantial agreement as to their preference regarding desirable roommates. Kuder-Richardson (20) reliability coefficients were .60, .87, and .69 for groups A, B, and C, respectively. The latter two of these coefficients are significant at the .01 level, while the first is significant at the .05 level.

Rank order correlations between social isolation scores and number of H-responses were .01, -.03, and -.31 for groups A, B, and C, respectively. None of these reached statistical significance. Since two of the three correlations were virtually zero, a combined correlation was not calculated. Scatterplots gave no suggestion of a curvi-linear relationship.

Ratings of empathy also showed substantial agreement among raters. Chi-square values determined via the Bock (1958) procedure for testing for significant differences among empathy scores were significant at the .001 level for all three groups.

The rank-difference correlations between the H-response and the empathy criterion were .25, .02, and -.14 for groups A, B, and C, respectively. None of these was statistically significant. Scatterplots gave no suggestion for curvi-linearity.

Hypothesis 3

The median number of H-responses produced was 17.0, 15.5 and 13.5 for the high, medium and low social interest groups, respectively, which indicated a trend in the predicted direction. A Kruskal-Wallis H-statistic was computed and found to be significant at the .001 level. Probing by means of the Mann-Whitney U-test revealed significant differences between the medium and low groups (.05 level) but not between the high and medium groups.

Hypothesis 4

The median number of H-responses produced by the firemen was 11.0 as compared with a median of 7.0 for the patients. The Mann-Whitney U-statistic was 2.19 and significant at the .01 level. The patient group and firemen were found to be comparable with respect to the variables which could effect H-response production, namely age, intelligence, and number of card rejections.

DISCUSSION

Hypothesis 1

The results did not support the

Phillips and Smith (1953) hypothesis that the number of H-responses varies inversely with social isolation. However, since questions can be raised as to how adequately the hypothesis was tested, it would be erroneous to conclude that the findings support Rapaport's (1946) position, i.e., that there is no relationship between the quantity of H-responses and social isolation.

The criterion for social isolation lends itself to considerable criticism. On the one hand, it appears to satisfy the requirements for a good criterion. Inter-judge agreement was high and differences among social isolation scores were very large. On the other hand, it could be that social isolation, as operationally defined, was not true social isolation. The "social isolates" of this study did not live a solitary existence when compared to that of the academic hermit who lives in the library stacks and never has a date. The "social isolates" of this study actively engaged in many social activities.

Hypothesis 2

Contrary to the statements of Klopfer (1954) and Phillips and Smith (1953), the results suggested that there is no relationship between the capacity for empathy and the number of H-responses.

Many of the criticisms leveled at the testing of Hypothesis 1 apply to the testing of Hypothesis 2, also. The criterion for empathy, like the criterion for social isolation, was psychometrically ideal. The significant (.001) chi-square values for differences among stimuli indicated that both high inter-judge agreement and high differentiation among rates (i.e., empathy scores) was achieved. However, it may have been that the empathy criterion groups, although statistically heterogeneous, were, practically speaking, homogeneous. Or, stated differently, the Ss receiving low empathy ratings may *not* be socially insensitive when compared with the

general population. To the extent that this is so, the hypothesis was not adequately tested.

The correlations between empathy scores and social isolation scores were .93, .88, and .71 for the groups A, B, and C, respectively. All three correlations were significant beyond the .01 level. Apparently the subjects either did not or could not distinguish between desirable roommates and good "empathizers," or possibly roommates are chosen according to perceived capacity for empathy.

Empathy as measured in this study, was treated as a general trait. Actually, empathy is a very subtle and complex concept, and a number of investigators (Brofenbrenner, Harding and Galloway, 1958; Cronbach, 1955; Cline and Richards, 1956; and Gage, Leavitt and Stone, 1956) have suggested that there are many different kinds of empathy. Brofenbrenner, for example, distinguishes between interpersonal sensitivity and sensitivity to the generalized other (or norm) and between first, second, and third person interpersonal sensitivity. Very possibly H is related to certain empathic abilities but not to others. If such is the case, future attempts at demonstrating a relationship between empathy and H should deal with the various types of empathic abilities.

Hypothesis 3

Results supported hypothesis 3. Persons having strong social interests produced more H-responses than persons lacking in social interests. Furthermore, the fact that the difference between the high and medium groups was not significant suggests that a low number of H-responses detects a lack of social interest more precisely than a high number of H-responses detects the presence of social interest.

Social interest, as operationally defined in this study, is a rather ambiguous term. A number of vocational interest variables in the Strong were used as measures of both social interest and lack of social interest. Very

likely some Strong variables are more closely related to H-response production than others. Future studies of the relationship between the H-responses and social interest should attempt to identify different kinds of social interest and their respective relationships to the H-response.

Hypothesis 4

Results supported Hypothesis 4. The patient group produced significantly fewer H-responses than the normal (firemen) group. Thus, it would appear that the effect of pathology, is, as Piotrowski (1957) and Phillips and Smith (1953) indicated, to reduce the number of H-responses.

Taken together, the findings for Hypotheses 3 and 4 suggest that social interest and pathology are inversely related. This notion is borne out by the fact that decreased social interest is one of the outstanding symptoms of mental pathology. Generally speaking, mental patients are thought to be unsuccessful in their social relationships, withdrawn from society, self-oriented and disinterested in others, and incapable of forming and maintaining close and stable interpersonal relationships. Possibly the H-response is related to some of these social difficulties but not to others. If such is the case, future research should attempt to determine those particular social difficulties which are and are not related to the H-response.

REFERENCES

- Bock, R. D. Remarks on the test of significance for the method of paired comparisons. *Psychometrika*, 1958, 23, 323-334.
- Borgatta, E. F. & Eschenbach, A. E. Factor analysis of Rorschach variables and behavioral observations. *Psychol. Rep.*, 1955, 1, 129-136.
- Bronfenbrenner, U., Harding, J., & Gallwey, M. The measurement of skill in social perception, in McClelland, D. C. et al. *Talent and Society*, New York; D. Van Nostrand, 1958, pp. 29-111.
- Cline, V. B. & Richards, J. M. Accuracy of interpersonal perception — a general trait? *J. Abnorm. Soc. Psychol.*, 1956, 60, 1-7.
- Cronbach, L. J. Processes affecting scores on "understanding of others" and "assumed similarity." *Psychol. Bull.*, 1955, 52, 177-193.
- DuBrin, A. J. The Rorschach "eyes" hypothesis and paranoid schizophrenia. *J. Clin. Psychol.*, 1962, 18, 468-471.
- Gage, N. L., Leavitt, G. S., & Stone, G. C. The intermediary key in analysis of interpersonal perception. *Psychol. Bull.*, 1956, 53, 258-266.
- Holtzman, W. H. Validation studies of the Rorschach test: shyness and gregariousness in the normal superior adult. *J. Clin. Psychol.*, 1950, 6, 343-347.
- Holtzman, W. H., Abbot, E., Reinchr, R. C., & Moseley, E. C. Comparison of an experimental group method and the standard individual version of the Holtzman Inkblot Technique. Unpublished study, Univ. of Texas, 1963.
- Holtzman, M. & Pearce, J. The personal meaning of the human figure in the Rorschach. *Psychiatry*, 1947, 10, 413-422.
- Holtzman, W. H., Thorpe, J. S., Swartz, J. C., & Herron, E. W. *Inkblot perception and personality*. Austin: The University of Texas Press, 1961.
- Klopfer, B., Ainsworth, M. D., Klopfer, W. C., & Holt, R. R. *Developments in the Rorschach Technique*. Vol. I. Technique and Theory. Yonkers: World Book Co., 1954.
- Lange, H. An investigation of the validity of the Rorschach technique in predicting sociability. Unpublished doctoral dissertation, Purdue University, 1959.
- Phillips, L. & Smith, J. G. *Rorschach Interpretation: Advanced Technique*. New York: Grune & Stratton, Inc., 1953.
- Piotrowski, Z. A. *Perceptanalysis: A fundamentally reworked, expanded, and systemized Rorschach method*. New York: Macmillan, 1957.
- Rapaport, D. *Diagnostic Psychological Testing*, Vol. II. Chicago Year Book Publishing Co., 1946.
- Strong, E. K., Jr. *Strong vocational interest test — men*, Stanford, Calif.: Stanford Univ. Press, 1938.
- Vayhinger, J. M. Prediction from the Rorschach of behavior in a group situation. Dissertation Abstr., 1956, 16, 1286.
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Received June 6, 1966

Revision received August 19, 1966

Perceptual Organization: A Developmental Analysis by Means of the Holtzman Inkblot Technique¹

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Summary: In order to clarify earlier findings regarding the relationship between level of perceptual development and scores on variables from the Holtzman Inkblot Technique (HIT), 360 normal Ss comprising three criterion age-groups—6.7, 9.7, and 12.7 years of age—were tested in a partial replication of an earlier investigation. Each group contained 60 males and 60 females. Two-way classification (sex-by-age) analyses of variance of eight selected HIT variables revealed only one significant sex difference and no significant sex-by-age interactions. Age-group differences beyond the .001 level of significance were found for seven of the eight variables studied, with five showing consistent monotonic increases with age. These steadily increasing means across the three age-groups, together with the interrelationships of these and other HIT variables at the three different age levels, are interpreted as supporting the concept of a hierarchical integration of perceptual functioning with increasing age.

In a recent study (Thorpe & Swartz, 1965) evidence was presented for several scores on the Holtzman Inkblot Technique (Holtzman, Thorpe, Swartz & Herron, 1961) as indices of level of perceptual development. These data were in the form of steadily increasing mean scores across five age-groups, ranging from preschool children five years of age to college students from eighteen to twenty-two years of age. The observed significant age-group differences for 6 of the 10 scoring variables studied resulted in a consistent and meaningful developmental ordering of the five groups which was in keeping with Heinz Werner's (1957a, 1957b) concept of developmental change in perceptual and cognitive functioning: progression along a continuum of increasing differentiation and integration. In addition, the abrupt quantitative increases observed for several of the scoring variables—particularly those variables reflecting the operations of differentiation and integration—were taken as indicating the emergence of a novel pattern of existing perceptual-cogni-

tive operations rather than the formation of new functions.

The present investigation, through the use of more clearly defined age-groups which cover a large portion of the age-range studied in the previous investigation, serves as a clarification and partial replication of the earlier findings.

METHOD

Subjects. The 360 Ss employed in the present study were selected from a larger sample of normal elementary and junior high school children being studied in a six-year longitudinal investigation of the developmental aspects of perception and related cognitive functioning. The three criterion age-groups, consisting of 60 males and 60 females from each of the first, fourth, and seventh grade levels, were tested within two weeks of the specified ages of six years, eight months; nine years, eight months; and twelve years, eight months, respectively. The two youngest age-groups, Groups I and II, were selected from eight different elementary schools in Austin, Texas. Ss in the oldest age-group, Group III, were selected from the seventh grade class of a single junior high school

¹ This study was supported in part by Grant M-3223 from the National Institutes of Health, United States Public Health Service.

which receives most of its students from the eight elementary schools.

The children included in this study are considered as largely representative of the broad segment of the middle and upper-middle socioeconomic classes in the Austin community. Latin-American and Negro children were excluded from the sample as were children with any physical anomalies or defects. These three groups, therefore, while covering only a 6-year developmental span, represent a marked improvement over the age-group sampling employed in the earlier study.

Procedure. Form A of the Holtzman Inkblot Technique (HIT) was administered individually to Ss in Groups I and III; a parallel form of the HIT, Form B, was given to Ss in Group II. Standard administration procedures were followed for all Ss. Although several other tests were given to the Ss, the HIT was always given at the beginning of each testing session. Ss in Groups I and II were tested by five trained examiners, Ss in Group III by two examiners. Testing was carried out during school hours throughout the school year. Cooperation on the part of Ss was usually very high since the testing sessions constituted a pleasant diversion from the normal school routine.

Each examiner scored his own HIT protocols; the protocols were then routinely check-scored by two psychologists having extensive scoring experience with the HIT.

Of the 22 standard HIT scoring variables, 8—Form Appropriateness, Form Definiteness, Integration, Movement, Human, Shading, Color, and Pathognomic Verbalization—were selected for analysis in the present study on the basis of the earlier findings of developmental trends for these variables (Thorpe & Swartz, 1965). Detailed descriptions and scoring procedures for these variables are given in Holtzman, *et al.* (1961). The data reported here are from the first pe-

riod of data collection in the 6-year longitudinal study described earlier.

RESULTS AND DISCUSSION

A two-way classification (sex-by-age) analysis of variance model was employed to test main and interaction effects on the summary scores of each of the eight variables selected for analysis. In the former study a correction for the number of inkblots rejected was made on summary scores using a statistical procedure which eliminated group differences in the frequency of rejections. A different procedure was followed in the present study in order to eliminate the influence of rejections on the other scoring variables. The initial sample sizes for Groups I, II, and III were 133, 142, and 142, respectively. Since 60 males and 60 females in Group I had a total Rejection score below 11, an equal number of males and females in each of Groups II and III was selected from the initial samples to provide distributions of individual Rejection scores equivalent to those found in Group I. This equation of the six cells of the present design was confirmed by an analysis of variance of the Rejection scores which yielded no significant differences for either the age or the sex variable. Following this procedure, analyses of variance were computed for each of the eight scoring variables identified earlier.

Although no significant sex-by-age interactions were found, the analyses of variance yielded age-group differences (significant beyond the .001 level) for all of the variables except Shading. The means and standard deviations for the eight variables for each of the three age-groups are presented in Table I. A significant sex difference ($p < .05$) was found only for one variable, Human, where females had slightly higher scores than males at each age level. Inspection of the figures in Table I reveals that five variables — Form Appropriateness, Form Definiteness, Integration, Movement, and Human—show steadily in-

creasing mean scores across the three age-groups. The developmental trends of scores for these variables give striking confirmation of the results of the earlier study of changes in HIT scores with increasing age. Comparison of the mean scores for these five developmental indices in both studies indicates that, despite often marked geographical differences in the age-populations sampled, the mean scores of the present age-groups define almost linear interpolations of the mean scores found for the former age-groups. This finding is particularly true for the Integration, Movement, Human, and Form Definiteness variables, as well as for Pathognomic Verbalization. As in the earlier study, Pathognomic Verbalization was found to decrease linearly with age, at least within the age range employed.

Although the current analysis of Shading scores failed to yield any significant age differences, the earlier study indicated that significant increases in this score did not occur until the age of 17 years and beyond. As with the earlier findings for Form Appropriateness, the current data reflect a steady increase with age in this score. Similarly, Color shows an initial decline in mean scores from Group I to Group II, followed by a

slight increase in Group III. The same pattern in Color scores was found in the previous study but at the 12½ year level.

The present confirmation of the earlier findings supports the interpretation of these several HIT scores—specifically the five showing consistent monotonic increases with age—as indices of developmental change. This change is characterized as an increase with age of responses involving concepts of a high form definiteness (as contrasted with vague and amorphous form responses) and an increase of form appropriate responses (characterized by the adequate organization of separate blot areas). This organizational or integrative aspect of perceptual development is reflected in the increasing incorporation of humans in interactive movement as an integral part of the responses.

It should be noted that in earlier factor analyses of HIT scores across a wide variety of subject populations, these developmental scores, with the exception of Form Appropriateness, defined a single factor which was invariant across the various samples (Holtzman, *et al.*, 1961). In order to determine the extent to which these variables are interrelated in the present samples, product-moment inter-

TABLE I—Means, Standard Deviations and Significance Levels for the Three Criterion Age-Groups on Eight HIT Variables

| Variable | | Group I | Group II | Group III |
|---------------------------------|------|---------|----------|-----------|
| Form Appropriateness (FA) * | Mean | 35.1 | 38.3 | 42.5 |
| | S.D. | 7.5 | 5.1 | 5.8 |
| Form Definiteness (FD) * | Mean | 61.9 | 76.1 | 79.4 |
| | S.D. | 19.0 | 14.2 | 17.2 |
| Integration (I) * | Mean | 1.8 | 3.5 | 5.4 |
| | S.D. | 1.9 | 3.3 | 4.5 |
| Movement (M) * | Mean | 19.6 | 27.6 | 33.5 |
| | S.D. | 16.2 | 16.6 | 20.4 |
| Human (H) * | Mean | 15.0 | 17.9 | 20.7 |
| | S.D. | 8.9 | 8.6 | 10.6 |
| Color (C) * | Mean | 19.8 | 13.2 | 15.7 |
| | S.D. | 7.5 | 5.1 | 5.8 |
| Shading (Sh) | Mean | 4.5 | 5.5 | 5.4 |
| | S.D. | 3.9 | 3.5 | 4.2 |
| Pathognomic Verbalization (V) * | Mean | 7.4 | 5.1 | 2.3 |
| | S.D. | 10.0 | 5.7 | 3.9 |

* Variable having significant age effect beyond the .001 level in the analysis of variance.

correlations were computed separately for all eight scores for each age-group. The three intercorrelation matrices are presented in Table II, with the variables arranged in order to better illustrate the following interrelationships.

Inspection of these matrices reveals that certain aspects of the pattern of score interrelationships shift with increasing age. As was expected, the positive intercorrelations among Movement, Integration, and Human scores are highly significant within each age-group, as they have been in many populations studied previously. However, it is of interest to note the changing relations of these three variables to the Shading and Color scores: with increasing age the coefficients shift from negative to zero, as in the case with Human scores; or from zero to positive, as with Movement and Integration scores. Similarly, the correlations of Pathognomic Verbalization scores with the three reference variables increase from zero or low-order positive coefficients in Group I to stronger positive coefficients in Groups II and III. Form Definiteness scores,

which correlate positively with Movement and Human (although not so clearly in Group II), have been found in previous analyses to load on the factor defined by Movement, Integration, and Human. In the present data, this variable is observed to shift systematically in its correlation with Shading from negative in Group I to zero in Group III, and with Color from high-order negative in Group I to low-order negative in Group III.

Except perhaps for the Integration variable, the changes with age in the magnitude of these intercorrelations cannot be accounted for in terms of changes in the variance of scores from one age-group to another. Reference to the standard deviations of the scores in Table I will confirm this point. Rather, these changes are taken as supporting the concept of a hierarchical integration of perceptual functioning with increasing age. The features of responses to inkblots which in themselves do not show developmental trends—features which are reflected in the Shading and Color scores—are seen to interrelate in a systematic manner to those scores

TABLE II—Intercorrelations of Eight HIT Variables Within the Three Criterion Age Groups*

| Variable | I | H | FD | V | Sh | C | FA | |
|----------|----|----|-----|------|------|------|------|-----------|
| M | 45 | 41 | 24 | 21 | -.04 | .01 | .06 | |
| I | | 44 | 30 | -.04 | .15 | -.15 | .03 | |
| H | | | 58 | 21 | -.23 | -.34 | -.12 | |
| FD | | | | 11 | -.38 | -.58 | -.29 | Group I |
| V | | | | | .00 | .06 | -.39 | (N = 120) |
| Sh | | | | | | .34 | .22 | |
| C | | | | | | | .29 | |
| M | 50 | 48 | 19 | 58 | .22 | .35 | -.18 | |
| I | | 37 | .07 | 35 | .23 | .29 | .18 | |
| H | | | 50 | 37 | -.05 | -.16 | -.20 | Group II |
| FD | | | | 10 | -.20 | -.43 | -.22 | (N = 120) |
| V | | | | | .18 | .28 | -.16 | |
| Sh | | | | | | .48 | .17 | |
| C | | | | | | | -.02 | |
| M | 81 | 51 | 38 | 47 | .54 | .46 | .24 | |
| I | | 64 | .44 | 48 | .38 | .28 | .22 | |
| H | | | 62 | 36 | .01 | -.06 | .29 | Group III |
| FD | | | | 22 | -.07 | -.25 | .36 | (N = 120) |
| V | | | | | .28 | .28 | .03 | |
| Sh | | | | | | .68 | .13 | |
| C | | | | | | | -.04 | |

*Decimal points omitted. Coefficient of .23 required for significance beyond the .01 level.

which do yield developmental trends. Although the sheer incidence of Shading and Color scores does not increase with age, the integration of these stimulus characteristics into responses characterized by more perceptually mature scores does increase. Even Pathognomic Verbalization scores, which are seen to decrease markedly with age to a minimum in Group III, nevertheless are found to relate most positively to the other developmental indices in Group III. Thus, although the more fantasied and autistic aspects of responses are least frequent in this age-group, their infrequent occurrence is either most often in conjunction with developmentally mature scores (Movement, Integration, and Human) or least exclusive of them (Form Appropriateness).

It is concluded that the results of the present study confirm the earlier findings relating HIT scores to level of perceptual development and support the interpretation of several HIT scores, specifically the five showing consistent monotonic increases with age, as indices of perceptual change outlined by the developmental theory

of Werner (1957a). In addition, with the exception of Form Appropriateness, the variables Form Definiteness, Integration, Movement, and Human are interrelated in the present samples in such a manner as to support the concept of a hierarchical integration of perceptual functioning with increasing age.

REFERENCES

- Holtzman, W. H., Thorpe, J. S., Swartz, J. D., & Herron, E. W. *Inkblot perception and personality*. Austin: The University of Texas Press, 1961.
- Thorpe, J. S., & Swartz, J. D. Level of perceptual development as reflected in responses to the Holtzman Inkblot Technique. *J. proj. Tech. & Pers. Assess.*, 1965, 29, 280-286.
- Werner, H. *Comparative psychology of mental development*. (2nd ed.) New York: International Universities Press, 1957. (a)
- Werner, H. The concept of development from a comparative and organismic point of view. In D. B. Harris (Ed.), *The concept of development: An issue in the study of human behavior*. Minneapolis: University of Minnesota Press, 1957. Pp. 125-148. (b)

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Received April 8, 1966

Structured Personality Tests and Dissimulation

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Summary: Female college students were tested and retested with the MMPI and the *Mooney Problem Check List*. Retest instructions were relatively neutral for control groups; experimental groups were told that they were being retested because the honesty of their original test responses was in question. Contrary to the experimental hypotheses, the experimental groups showed increased defensiveness and less willingness to admit to symptoms and problems. The results raise questions about the adequacy of structured personality tests in dealing with the problem of dissimulation.

The sensitivity of semi-projective techniques and structured personality tests to conscious control has been a continuing question of importance and controversy. In regard to the sentence completion, Rotter and Rafferty (1950) say of their own test: "The responses tend to provide information that the subject is willing to give rather than that which he cannot help giving" (p. 3).

Similarly, Meehl and Hathaway (1956) in discussing structured personality tests have this to say: "One of the most important failings of almost all structured personality tests is their susceptibility to 'faking' or 'lying' in one way or another, as well as their even greater susceptibility to unconscious self-deception and role-playing on the part of individuals who may be consciously quite honest and sincere in their responses" (p. 12).

In the case of the MMPI there are, of course, the validity scales which attempt, in part, to assess the degree of faking represented in any one protocol. The L, F, and K scales which are an undeniable psychometric sophistication are also, nonetheless, a concession to the essential vulnerability of the MMPI to subject-control.

The present study was an attempt to decrease dissimulation and control in response to structured personality tests by challenging the subjects' honesty of responding. The general hypothesis was that under repeat testing

subjects whose initial test performances have been questioned in regard to honesty will be led to exercise less control and censoring in their responses.

PROCEDURE

Thirty-seven female college freshmen, all of whom had taken the MMPI as part of a freshmen orientation program were randomly selected from the freshman class and retested three weeks later with the MMPI. The control groups of 18 Ss were told that the purpose of the retesting was to investigate certain properties of the test; 19 Ss, experimental group, were told that they were being retested because the Psychology Department had reason to doubt the honesty of their original responses.

A different group of 25 female college freshmen (control group N=10; experimental group N=15) were tested and retested 3 weeks later with the *Mooney Problem Check List*. The explanations as to the purpose for retesting were identical to those given the two respective MMPI groups. The *Mooney* was specifically selected because it lends itself so obviously to conscious control. The *Mooney* is a list of 330 "problems which often face students in college" and the subject is instructed to "pick out the particular problems which are of concern to you."

The MMPI is a forced-choice technique and given the subtlety of many of the items, it is not always intuitively obvious to the subject which is the

¹The authors are indebted to Miss Amy Russell for her aid in this research.

TABLE I—Test-retest Means on the MMPI and Mooney

| Group | MMPI Scales | | | | | | | | | | | | | | | |
|---------|-------------|------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|---|---|
| | L | | F | | K | | 1 | | 2 | | 3 | | 4 | | | |
| | T | R | T | R | T | R | T | R | T | R | T | R | T | R | T | R |
| Control | 2.77 | 2.61 | 15.05 | 15.61 | 5.00 | 4.56 | 5.28 | 3.56 | 19.94 | 18.88 | 20.78 | 20.89 | 15.67 | 13.61 | | |
| Experi | 3.26 | 3.11 | 14.26 | 15.37 | 4.79 | 2.68 | 7.63 | 5.16 | 23.05 | 21.32 | 23.18 | 22.47 | 16.95 | 14.53 | | |

| Group | Mooney | | | | | | | | | | | | | | | |
|---------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|---|
| | 5 | | 6 | | 7 | | 8 | | 9 | | 0 | | | | | |
| | T | R | T | R | T | R | T | R | T | R | T | R | T | R | T | R |
| Control | 39.11 | 39.50 | 11.72 | 10.72 | 14.17 | 13.00 | 14.39 | 11.44 | 17.44 | 17.39 | 26.89 | 23.76 | 39.80 | 42.20 | | |
| Experi | 38.00 | 39.26 | 10.37 | 8.95 | 17.05 | 13.42 | 16.05 | 10.05 | 17.21 | 15.58 | 30.05 | 30.11 | 38.13 | 27.80 | | |

"better" response. The *Mooney* is neither subtle nor does it use forced-choice techniques; the subject has complete conscious control over the number and nature of his responses.

The specific predictions, then, were that the differential retest instructions would produce differential test taking attitudes such that the experimental groups would give less censored, less controlled responses, i.e., more symptom expression, and that this effect would be greater on the *Mooney* than on the MMPI.

RESULTS

The test-retest means for the four groups on both tests are shown in Table I. On inspection it is clear that on the MMPI both control as well as experimental groups show *decreased* elevation on retesting. On retesting with the *Mooney* the control group shows an increase, while the experimental group shows a decrease.

Test-retest differences for all groups on both tests were analyzed by means of the Wilcoxon matched-pairs signed-ranks test as outlined by Siegel (1956). The results of these analyses which are summarized in Table II reveal that on the MMPI the control group produced significant changes on scales 1, 4, and 8. The experimental group also produced significant changes on these 3 scales, and in addition significant changes on scales K, 2, 7, and 9. All significant changes for both groups were in the direction of decreased elevation.

The results from the *Mooney* are particularly striking evidence for the

TABLE II—Wilcoxon T Values of Test-Retest Difference Scores

| Test | Control | Experimental |
|--------|----------|--------------|
| L | T=35.0 | T=28.5 |
| F | T=44.5 | T=28.5 |
| K | T=31.5 | T=0** |
| Hs | T=2.5*** | T=20.0** |
| D | T=34.0 | T=28.5 |
| Hy | T=63.0 | T=51.5 |
| Ed | T=21.5* | T=26.5* |
| Mf | T=69.5 | T=65.0 |
| Pa | T=71.0 | T=44.0 |
| Pt | T=42.0 | T=13.5** |
| Sc | T=25.5* | T=13.5** |
| Ma | T=51.5 | T=30.5* |
| Si | T=31.0 | T=85.5 |
| Mooney | T=3.0** | T=16.0** |

*Significant at .05 level.

**Significant at .01 level.

*All p values are two-tailed.

*Indicates a significant retest *increase*; all other significant differences indicate *decreases*.

effect of the variations in instructions. The *Mooney* control group produced a significant retest increase in the number of problems checked while the experimental group produced a significant retest decrease. The control group data for the two tests are thus not consistent. The data for both the *Mooney* and the MMPI experimental groups are entirely consistent, and consistently in opposition to the hypothesis of this study.

DISCUSSION

Though the data from this study raise a number of interesting questions it is clear that the original hypothesis must be rejected. The experimental instructions did apparently affect test-taking attitudes, but rather than to reduce control the instruc-

tions had the effect of increasing subject control and censoring of responses. It would seem that when a subject's honesty is questioned, what is introduced is not a set for a more frank admission of problems, but rather what is introduced would seem to be a general threat to which defensive responding is perhaps an appropriate consequence.

Windle (1954, 1955) in reliability studies of the MMPI found that retesting showed improved adjustment. The data from our MMPI control group are consistent with Windle's data. Windle, however, attributes the increased adjustment to a reduction of test-taking anxiety. In light of the fact that our experimental groups showed even greater improvement in adjustment than the controls, Windle's explanation would not seem appropriate for the data from this present study.

Admittedly, this present study does not provide evidence specific to "test-taking anxiety." It would seem, nonetheless, unreasonable to consider that the experimental MMPI group could have had *less* test-taking anxiety than the control groups.

Though on an absolute basis the two control groups responded differently upon retesting, *relatively* the results are consistent. Both control groups produced records of apparent less good adjustment and a franker admission of problems than the experimental groups. Whatever ambiguity may be involved in an understanding of the processes that produced the retest results for the control groups, it is clear that the experimental instructions had the effect of inhibiting honest expression.

One note of caution regarding the generalizability of the findings in this study is, perhaps, in order. The MMPI is used in a wide variety of settings for a wide variety of purposes. It is often used, for example, as part of an individual clinical battery of tests for a person seeking psychotherapeutic

help as well as being used routinely for purposes of mass screening in various institutional settings. Freeman (1962) and others have noted that the reliability and validity of the MMPI and inventories in general are particularly sensitive to differences in conditions of administration. The data from this study cannot safely be applied to the entire range of test conditions. Nonetheless, the testing situation and population sampled in this study would seem to be sufficiently common to make the results and implications of the findings of substantial importance.

At a minimum what the data do suggest is the vulnerability of the MMPI in particular, and structured personality tests in general, to defensive and guarded responding. Further, it should be noted that the validity scales of the MMPI were not sensitive to the apparent differences in test-taking attitudes. Indeed, the experimental group had a significantly lower retest score on the K scale, presumably indicating *less* defensiveness on the part of the experimental group!

In short, the internal validity measures of the MMPI for all their relative sophistication seem not to have solved the problem of subject control, perhaps inherent in all structured personality tests. Goldberg and Stark (1965) have suggested that structured personality tests err in spuriously equating cautious, guarded responding with good adjustment. The data from this study are consistent with that suggestion.

REFERENCES

- Freeman, F. S. *Theory and practice of psychological testing*. New York: Holt, 1962.
- Goldberg, P. A. & Stark, M. J. Johnson or Goldwater?: some personality and attitude correlates of political choice. *Psychol. Rep.*, 1965, 17, 627-631.
- Meehl, P. E. & Hathaway, S. R. The K factor as a suppressor variable in the MMPI. In G. S. Welsh & W. C. Dahlstrom (Eds.), *Basic readings on the MMPI in psychology and medicine*. Minneapolis: Univ. of Minnesota Press, 1956, 12-40.

Rotter, J. B. & Rafferty, Janet E. *Manual: the Rotter Incomplete Sentences Blank*. New York: Psychological Corp., 1950.

Siegel, S. *Nonparametric statistics for the behavioral sciences*. New York: McGraw-Hill, 1956.

Windle, C. Test-retest effect on personality questionnaire. *Educ. Psychol. Measmt.*, 1954, 14, 617-633.

Windle, C. Studies of test-retest effect. *Educ. Psychol. Measmt.*, 1955, 15, 246-253.

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Received February 9, 1966

Revision received June 20, 1966

Test Equivalence of Projective and Structured Self-Concept Instruments¹

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Summary: The equivalence of self-concept instruments is infrequently questioned despite their independent derivation and assessment operations. This study was concerned with the extent to which four popular instruments could be considered to be equivalent measures of self-evaluation. The results showed that the four instruments could not be considered to be equivalent measures of self-evaluation although Bill's Index of Values, Fiedler's Semantic Differential Technique, and Gough's Adjective Checklist had more in common with each other than with Kuhn's Twenty Statements Test.

As a construct in current research the self-concept has achieved considerable prominence, and with the popularity of the self as an object for study there has been a corresponding interest in the development and application of instruments designed specifically to tap some aspect of self-evaluation. However, despite independent derivation and assessment operations for such instruments, it is surprising how infrequently the question of test equivalence has been raised. Crowne and Stephens (1961, p. 107) state: ...

"...tests of self-acceptance...which are based on different construct systems and in the development of which different procedures and items have been employed are not equivalent in the absence of empirical demonstration of their relationships..."

At the present time only one empirical investigation has concerned itself directly with the problem of equivalence (Crowne, Stephens, and Kelly, 1961). Information on this matter is not lacking, however. In terms of problems of validity, correlations between pairs of tests are not uncommon (Silber and Tippet, 1965; Bills, 1958; Omwake, 1954). The coefficients of association tend to be of a magnitude that indicate that the margin of error accompanying prediction from one test to another is relatively great. A more complete understanding of the extent of predictive error is

important so that results of empirical investigations can, with a greater degree of confidence, be generalized to findings obtained with a different instrument. A better understanding of the extent of test equivalence would also aid the clinician, especially in school and personnel situations where he is often dependent on previously gathered information. The primary purpose of this investigation, then, is to explore further the extent to which several popular instruments can be considered equivalent measures of self-evaluation, and to identify at least several components of predictive error.

METHODS

Instruments

Four frequently used instruments were selected. These instruments were based on two measurement models: *fixed response* as in adjective checklists and rating scales where the response possibilities are limited by the nature of the task and *open response* as found in projective tests. Because some of the instruments could be scored for negative self evaluation (derogation, criticality) as well as for positive self evaluation (esteem, acceptance), these scores were also computed. A total of eight separate scores were calculated. The tests and the scores derived from them are as follows:

1. Kuhn's (1960, 1954) Twenty Statements Test (TST). Respondents

¹Funds for this investigation were made available by the Graduate College, University of Iowa.

answered the question, "Who am I?" 20 times and then rated their degree of personal satisfaction with each statement along a four point scale. Two scores were computed: a) the number of self-derogating statements (TST-#SD), and b) a self-satisfaction score which consisted of the sum of the satisfaction ratings (TST-ISS).

2. Fiedler's (1959) Semantic Differential Technique (FSD). Respondents made successive self and ideal ratings on 20 pairs of adjectives (friendly . . . unfriendly; bold . . . timid) arranged on six point scales. Two scores were derived: a) a self-esteem score which was the sum of self ratings of the adjectives (FSD-SE), and b) a self-ideal discrepancy score based on the D statistic (FSD-DIS).

3. Bills, (Bills, 1958) (Bills, Vance & McLean, 1951) Index of Adjustment and Values (IAV). The IAV consists of 49 adjectives which are rated on four point scales for self-concept, self-acceptance, and ideal concept. Two scores were calculated: a) a self-acceptance score which reflected the respondent's satisfaction with being as he described himself (IAV-SA), and b) an ideal-self discrepancy score which was based on the difference between self and ideal ratings (IAV-DIS).

4. Goughs, (Gough & Heilbrun, 1965) (Gough, 1960) Adjective Check List (ACL). The ACL consists of 300 adjectives of which the subject endorses those which he feels describe himself. Two scores were obtained: a) self-acceptance (ACL-SA) and b) self-criticality (ACL-SC). These scores express the ratio of the number of favorable (or unfavorable) adjectives checked by the respondent to the total number of adjectives checked.

Subjects and Procedure

The subjects were 355 students enrolled in introductory sociology courses at the University of Iowa. The instruments were administered approximately one week apart during

the regularly scheduled lecture sessions. Two hundred and eighty-three subjects received the TST first, followed in order by the FSD, IAV, and ACL. The remaining 72 subjects received one of several other orders of presentation. Because the scores obtained did not differ by order, this analysis is not presented separately.

RESULTS

Table I presents the means and standard deviations of the various scores. It can be seen that the differences between males and females are, with one exception, negligible. Self-acceptance is significantly higher among males on the IAV.

TABLE I—Means and Standard Deviations for Males, Females, and Both Sexes

| Test | | Total Sample (355) | Males (158) | Females (197) |
|---------|----|--------------------|-------------|---------------|
| TST-#SD | M | 1.63 | 1.62 | 1.63 |
| | SD | 1.97 | 2.09 | 1.87 |
| TST-ISS | M | 62.79 | 62.59 | 62.94 |
| | SD | 7.66 | 6.51 | 8.47 |
| ACL-SA | M | 47.91 | 47.80 | 47.99 |
| | SD | 9.57 | 10.94 | 8.31 |
| ACL-SC | M | 8.71 | 9.10 | 8.40 |
| | SD | 6.86 | 7.78 | 6.00 |
| IAV-SA | M | 173.22 | 176.03* | 170.96* |
| | SD | 21.93 | 22.25 | 21.41 |
| IAV-DIS | M | 39.65 | 38.30 | 40.74 |
| | SD | 14.98 | 14.21 | 15.48 |
| FSD-SE | M | 51.20 | 51.27 | 51.14 |
| | SD | 8.49 | 8.59 | 8.41 |
| FSD-DIS | M | 6.08 | 6.23 | 5.97 |
| | SD | 2.03 | 2.16 | 1.90 |

* $p < .05$ (t test, two tailed).

Table II shows the Pearson correlations for all measures. The highest correlations are usually obtained when scores derived from the same instrument are correlated. This table also indicates that scores derived from instruments based on a similar measurement model are more highly associated than scores derived from dissimilar models. Correlations between fixed response scores are usually in the .40's and .50's while correlations in the

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TABLE II—Correlations of Scores from Four Self-Evaluation Instruments

| | TST- #SD | TST- ISS | ACL- SA | ACL- SC | IAV- SA | IAV- DIS | FSD- SE |
|---------|-------------|-------------|------------|------------|------------|-------------|------------|
| TST-ISS | -.51 | | | | | | |
| ACL-SA | -.39 | .33 | | | | | |
| ACL-SC | .37 | -.32 | -.78 | | | | |
| IAV-SA | -.27 | .33 | .45 | -.39 | | | |
| IAV-DIS | .30 | -.28 | -.44 | .43 | -.57 | | |
| FSD-SE | .30 | -.33 | -.51 | .52 | -.54 | .46 | |
| FSD-DIS | .28 | -.30 | -.45 | .46 | -.44 | .56 | .62 |

Note: Signs can be disregarded because all are in the anticipated direction.

.20's and .30's are the modal pattern between fixed and open response scores. The TST clearly has the least in common with the other tests included in this investigation, although it would be difficult to choose any one of the fixed response instruments as having either the least or most in common with the others.

An analysis of the data presented by sex in Table II disclosed only two significant differences. Both differences arose when scores from the same instrument were correlated. The ACL-SC : ACL-SA correlation for males ($-.83$) was significantly greater ($p < .05$) than the corresponding correlation for females ($-.72$). However, the FSD-SE : IAV-SA correlation for females ($-.69$) was significantly greater ($p < .01$) than the corresponding correlation for males ($-.40$). Other than a slight tendency of correlations for males to be of a greater magnitude than those for females, there are no additional consistent patterns immediately apparent for a division by sex.

Our data seem to support the frequent contention that self-acceptance and self-criticality are polar extremes of the dimension of self-evaluation. For example, when the correlations between the ACL-SA and each of the other tests are compared to the correlations between the ACL-SC and each of the other tests, no appreciable differences in magnitude are observed. Moreover, when the TST-ISS correlations are compared to the TST-#SD correlations, it can be seen that they are not noticeably different in magnitude.

Self-ideal discrepancy scores are most commonly regarded as measures of self-acceptance. However, they can be regarded equally well as measures of lack of self-acceptance. When these scores are examined in relationship to self-acceptance and self-criticality, it appears that the self-ideal scores are no more closely related to self-acceptance than to self-criticality. For instance, the correlation of .30 between the IAV-DIS and TST-#SD is almost identical to the magnitude of the correlation between the IAV-DIS and TST-ISS, and the correlations between the IAV-DIS and ACL-SC is highly similar to that between the IAV-DIS and ACL-SC. The same is true of the FSD-DIS correlations.

DISCUSSION

These results may appear to be encouraging or discouraging depending upon the standards chosen for equivalence. Since only a minor part of the error variance among the several tests was accounted for, one cannot state that the tests are equivalent. However, ability to correctly generalize from results based on different instruments can be increased if several considerations are taken into account.

Perhaps the most important factor is the similarity of assessment operations among the tests. Other things being equal, the greater the similarity in assessment operations the greater the correspondence in results obtained by different instruments. Among the more important similarities in assessment operations are those stemming from the initial psychometric model

and from the computational procedures. Some elaboration is required on these points.

Tests based on the fixed response psychometric model were found to be most equivalent. Although the only open response instrument used in the present investigation was the TST, it would seem reasonable to hypothesize that the same principle pertains to other similarly constructed instruments, such as Bugental and Zelen's (1950) WAY technique and Kelly's (1955) Role Repertory Test. Furthermore, regardless of the instrument, scores derived by similar computational procedures are more highly related. In this respect, a self-ideal discrepancy score stemming from two different instruments is more likely to show a high interrelationship than a discrepancy score from one test and a summated global rating or ratio derived from another.

Despite sex differences that have been reported in self-concept research, findings are contradictory regarding whether males or females have the more favorable self-conception, (Crowne, Stephens, and Kelly, 1961; Engel, 1959; Salisbury, 1963). Findings of no differences at all have also been reported (Turner and Vanderlippe, 1958). Sex differences in the present investigation seemed unimportant—only one significant difference was found. The overall failure to find sex differences in the present investigation suggests that differences in self-evaluation between sexes are not as great as previously suggested. It is our opinion that, except for the IAV-SA score, the equivalence of scores for male and female college students can be assumed.

REFERENCES

- Bills, R. E., *Manual for the index of adjustment and values*, Auburn, Alabama: Alabama Polytechnical Institute, 1958.
- Bills, R. E., Vance, E. L., & McLean, O. S., An index of adjustment and values, *J. consult. Psychol.*, 1951, 15, 257-261.
- Bugental, J. F. T. & Zelen, S. I., Investigations into the 'self-concept.' I. the W-A-Y technique, *J. Pers.*, 1950, 483-498.
- Crowne, D. P. & Stephens, M. W., Self-acceptance and self-evaluative behavior: a critique of methodology, *Psychol. Bull.*, 1961, 58, 104-121.
- Crowne, D. P., Stephens, M. W., & Kelly, R., The validity and equivalence of tests of self-acceptance, *J. Psychol.*, 1961, 51, 101-112.
- Engel, Mary, The stability of the self-concept in adolescence, *J. abnorm. soc. Psychol.*, 1959, 58, 211-215.
- Fiedler, F. E., Hutchins, E. B., & Dodge, Joan S., Quasi-therapeutic relations in small college and military groups, *Psychol. Monog.*, 1959, 73, 1-25.
- Gough, H. G., The adjective check list as a personality assessment research technique, *Psychol. Rep.*, 1960, 6, 107-122.
- Gough, G. & Heilbrun, A. B., *The adjective check list manual*, Palo Alto, Calif.: Consulting Psychologists Press, 1965.
- Kelly, G. A., *The Psychology of personal constructs*, Vol. I, New York: Norton, 1955.
- Kuhn, M. H., Self-attitudes by age, sex, and professional training, *Sociol. Quart.*, 1960, 1, 39-55.
- Kuhn, M. H. & McPartland, T. S., An empirical investigation of self-attitudes, *Amer. Sociol. Rev.*, 1954, 19, 68-76.
- Omwake, Katherine T., The relation between acceptance of self and acceptance of others shown by three personality inventories, *J. consult. Psychol.*, 1954, 18, 443-446.
- Salisbury, W. W., The self and anxiety, Unpublished Doctoral dissertation, University of Iowa, 1963.
- Silber, E. & Tippet, Jean S., Self-esteem: clinical assessment and measurement validation, *Psychol. Rep.*, 1965, 16, 1017-1071.
- Turner, R. H. & Vanderlippe, R. H., Self-ideal congruence as an index of adjustment, *J. abnorm. soc. Psychol.*, 1958, 57, 202-206.

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Received February 11, 1966

Variables Influencing the Cognitive Organization of the Self¹

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Summary: The self-concept, as it is measured by the self-concept-span (S-C-S) is shown to be related to 1) the ego strength of the S, 2) the valence of the predicated traits, 3) the valence of the self-predication, and 4) the sex of the S. Thus, high ego strength Ss have wider S-C-Ss than low ego strength Ss; compared to Ss with low ego strength, those with high ego strength deny fewer traits; high ego strength Ss tend to affirm fewer socially undesirable traits than low ego strength Ss; and, finally, males compared to females include relatively more socially undesirable traits as part of their S-C-S. These results are accounted for mainly in terms of the nature of ego strength and sex role differences in males and females.

What is the meaning of "I"? One answer to this question is to have people tell what characterizes them. Thus, whatever traits are subsumed under "I", operationally defines "I" for a given person. Such a procedure shows that "I" qualitatively differs from person to person. And, this is what common sense would tell us — not all people are alike nor do they consider themselves like others. Common sense, however, does not easily lead to another fact; namely, that "I"s quantitatively differ. One such difference is the number of traits subsumed under "I": Compared to others, some people are able to tell us significantly more about themselves. This quantitative aspect of "I" may be called the Self-Concept-Span (S-C-S). Now, the S-C-S is correlated positively with a person's perceptual category width (Pettigrew, 1958) and with strong value systems, low rigidity, and low anxiety (Mayzner and Tresselt, 1955). These few correlations provide the only construct validity for the S-C-S. Therefore, it is the purpose of this investigation to expand the meaning of the S-C-S and, in so doing, to increase our knowledge of the cognitive organization of "I".

Let us consider some of the variables that might be associated with the S-C-S: Since a wide S-C-S is correlated with low anxiety and low

rigidity, it would be reasonable to assume that it is related to ego strength. That is, the more one has articulated himself (the more traits he can subsume under "I"), the greater his capacity for personality integration. Therefore, the S-C-S should be correlated positively with a measure of ego strength. A second relevant variable is suggested by the fact that a number of investigators have found differences in the cognitive structures of males and females. In particular, Pettigrew (1958) found the male perceptual category width to be greater than that of the female. Wallach and Kogan (1959) further demonstrated that sex-linked category width is a function of judgmental certainty. In any event, the sex of the S would appear to be a likely correlate of the S-C-S. Finally, it would be simplistic to consider the S-C-S as a composite of only the traits subsumed under "I". Rather, the self concept consists of what one is and of what one is not. For example, one might be dependent but *not* helpless. Here, one would also want to consider the valence of the traits which are affirmed or denied: A person is also 'good' and 'bad'. In effect, the S-C-S should be investigated in terms of both the number of affirmed and denied traits, as well as in terms of the valence of the affirmed and denied traits.

To summarize, then, this investigation will examine the S-C-S as it relates 1) the ego strength of S, 2) the

¹The author wishes to thank Jean Freilicher Nidorf for critically reading the first draft of this paper.

valence of the self predication, 3) the valence of the predicated traits, and 4) the sex of the *S*.

METHOD

Subjects. Fifty-eight male and sixty female students enrolled in the introductory psychology courses at San Fernando Valley State College served as *Ss* for the investigation. Since Introductory Psychology is a required course for the entire student body, these *Ss* can be considered representative of the entire college population of freshman and sophomores.

The experimental tasks. The investigation was conducted in the course of two regular class sessions. During the first session, the *Ss* were administered a measure of the S-C-S. This was the Gough Adjective Check List (ACL), which consists of 300 trait descriptive terms of positive and negative valence (Gough, 1952). The instructions for the ACL were modified in two ways: First, the *Ss* were asked to indicate both the adjectives which characterize them and the adjectives which did not characterize them. Second, they were asked to indicate on a three point scale how certain they were that the adjectives were characteristic or uncharacteristic. Thus, with these instructions the ACL provided a measure of the S-C-S consisting of affirmed and denied traits and a measure of the *S*'s judgmental certainty. During the second experimental session, the *Ss* were administered the Barron Ego Strength Scale (Barron, 1963). This scale is composed of 68 MMPI items. An item is checked either true or false, depending on whether or not the *S* feels it is characteristic of him.

RESULTS

The S-C-S scores were derived in two ways from the Gough Adjective Check List: First, the certainty judgments were ignored, and the total number of traits that the *S* omitted were counted. Then, the mean total

omit scores for the males ($\bar{X}=28$) were compared to those for the females ($\bar{X}=44$) and found to be significantly different ($t=2.645$). This sex difference is consistent with that found by Pettigrew (1958) and suggests that the present variation in ACL instructions (indicating both characteristic and uncharacteristic traits as well as judgmental certainty) did not change the basic nature of the S-C-S. The second method of deriving S-C-S scores involved counting only those traits of which the *S* was most certain (those traits given a rating of three on the certainty scale). Since it seemed reasonable to suppose that judgmental certainty lends to the precision and reliability of self-rating devices, the final S-C-S scores used in the data analysis consisted of a composite score of those traits which the *S* affirmed or denied with certainty.

The ego strength scale was scored with the Key suggested by Barron (1963, pp. 122-124). After scoring, separate male and female distributions were plotted. The 21 highest and lowest scoring *Ss* in both distributions constituted the final sample for the investigation ($N=84$). Thus, there were 21 *Ss* in each of the following groups: 1) high ego strength males, 2) low ego strength males, 3) high ego strength females, and 4) low ego strength females.

The S-C-S. The between groups S-C-S scores proved to be heterogeneous; therefore, the square root transformation was used to rectify this situation. The data were then analyzed by means of a 2 by 2 by 2 analysis of variance design consisting of the following groups: 1) ego strength (high *vs* low), 2) the sex of the *S* (male *vs* female), and 3) trait predication (affirmed *vs* denied). The results of this analysis appear in Table I. Here, it can be seen that there is an overall difference in the trait predication means ($p<.10$). Thus, more traits were affirmed ($\bar{X}=5.89$) than

TABLE I — Analysis of Variance of Extreme S-C-S Scores

| Source | df | Mean Square | F | p |
|-------------------------|----|-------------|------|-------|
| Between Ss | 83 | | | |
| Sex (S) | 1 | .1 | — | — |
| Ego Strength (E) | 1 | 6.4 | — | — |
| S by E | 1 | .1 | — | — |
| Error | 80 | 6.47 | | |
| Within Ss | 84 | | | |
| Predication Valence (V) | 1 | 4.2 | 2.85 | <.10 |
| S by V | 1 | .1 | — | — |
| E by V | 1 | 8.4 | 5.69 | <.025 |
| S by E by V | 1 | 4.0 | 2.71 | — |
| Error | 80 | 1.47 | | |

denied ($\bar{X}=5.53$).² In addition, trait predication significantly interacted with ego strength ($p<.025$). Accounting for this interaction is the fact that Ss with low ego strength denied significantly fewer traits than Ss with high ego strength.

Trait predication and trait valence. Gough has coded the social desirability of the 300 ACL traits and provided scales for the 75 most desirable and the 75 most undesirable (Gough, 1952). Since it was our purpose to explore the valence composition of affirmed and denied traits, the ACLs were rescored using the social desirability scales. These data were then analyzed in two ways: The first analysis utilized the total number of affirmed socially desirable traits and the total number of denied socially undesirable traits. As in the analysis of the total S-C-S, the sex of the S and the ego strength were included as variables. And, again, since the between groups variances were heterogeneous, the data were coded by the square root transformation. Thus, the analysis of variance model was a 2 by 2 by 2 design with the following variables: 1) ego strength (high *vs* low), 2) the sex of the S (male *vs* female), and 3) trait predication (affirmed *vs* denied). The only statistically significant mean square yielded by this analysis is with ego strength; therefore, the summary table will be omitted. High ego strength Ss, however, both affirmed more socially desirable traits

and denied more socially undesirable traits than low ego strength Ss ($p<.025$). In effect, this amounts to the fact that compared to low ego strength Ss, those with high ego strength conceive of themselves as both possessing more socially desirable characteristics and as *not* possessing more socially undesirable characteristics.

With the exception of the criterion measure, the variables and statistical model used in the second analysis are identical to the first. The criterion measure consisted of the number of socially desirable traits that were denied and the number of socially undesirable traits that were affirmed. In contrast to the first analysis where the criterion measure consisted of affirmed socially desirable and denied socially undesirable traits, we were now interested in the number of positive traits which were uncharacteristic and the number of negative traits which were characteristic of a S. Again, the data were coded by a square root transformation to prevent the biasing effects of heterogeneous variance. A summary of the analysis of variance appears in Table II. Here, it can be seen that two of the main effects, ego strength and trait predication are both statistically significant ($p<.005$). Accounting for these results is the fact that compared to Ss with low ego strength ($\bar{X}=1.95$), those with high ego strength affirm fewer socially undesirable traits and deny fewer socially desirable traits ($\bar{X}=1.32$). The entire group of Ss, however, affirm

²All of the means reported in this paper are derived from the transformed data.

socially undesirable traits ($\bar{X}=1.80$) more than they deny socially desirable ones ($\bar{X}=1.47$). In other words, the Ss were more willing to concede socially undesirable traits than to deny socially desirable traits. In addition to the main effects, the second order interaction (sex by ego strength by trait predication) is also statistically significant ($p<.05$). Assessing the variables contributing to this result is somewhat complicated; therefore, let us consider Table III, which presents the within group means. Inspection of this table indicates three things: 1) Ss with low ego strength affirm more socially undesirable traits than Ss with high ego strength, 2) Ss with low ego strength generally deny more socially desirable traits than Ss with high ego strength, 3) low ego strength males compared to low ego strength females affirm more socially undesirable traits; whereas, high ego strength males compared to high ego strength females deny more socially desirable traits.

DISCUSSION

The data clearly indicate that the quantitative composition of "I" as it is measured by the S-C-S is dependent upon a number of variables: namely, ego strength, the valence of the predication, the social desirability of the predicated trait, and the sex of the predictor. Now, let us consider the interrelations among these variables.

Ego strength and valence of the predication. Openness to experience, a strong sense of reality, and a capacity for personally integration characterize people with high ego strength (Barron, 1963). Clearly, then, the individual endowed with high ego strength could be expected to have a well articulated and differentiated self. And, indeed, our results bear out this assumption: Although there is no significant difference between the number of traits that both high and low ego strength Ss affirm, there is a difference in the total number of traits which they deny. In other words, compared to those with low

TABLE II — Analysis of Variance of Affirmed Socially Undesirable Traits and Denied Socially Desirable Traits

| Source | df | Mean Square | F | p |
|-------------------|----|-------------|-------|-------|
| Between Ss | 83 | | | |
| Sex (S) | 1 | 2.46 | 1.65 | — |
| Ego Strength (E) | 1 | 16.45 | 11.08 | <.005 |
| S by E | 1 | 1.29 | — | — |
| Error | 80 | 1.48 | | |
| Within Ss | 84 | | | |
| Trait Valence (V) | 1 | 4.57 | 10.77 | <.005 |
| S by V | 1 | .06 | — | — |
| E by V | 1 | .29 | — | — |
| S by E by V | 1 | 1.88 | 4.43 | <.05 |
| Error | 80 | .42 | | |

TABLE III — Mean Number of Affirmed Socially Undesirable Traits and Denied Socially Desirable Traits

| | High Ego Strength | | Low Ego Strength | |
|-------------------------------|-------------------|--------|------------------|--------|
| | Male | Female | Male | Female |
| Affirmed Socially Undesirable | 1.37 | 1.53 | 2.49 | 1.81 |
| Denied Socially Desirable | 1.34 | 1.04 | 1.82 | 1.64 |

Critical Differences:

p .05=.29

p .01=.38

ego strength, high ego strength Ss indicate significantly more traits as being uncharacteristic of themselves. In this sense, it is as if there are two S-C-Ss — a positive one (What I am) and a negative one (What I am not). Ss with high ego strength have both wide positive and wide negative spans, while Ss with low ego strength have only a wide positive span. If the differentiation and articulation of any concept involves knowing what it is and what it is not, then it follows that the "I" concept of the high ego strength S is more differentiated and articulate than that of the low ego strength S.

Ego strength and trait valence. The data, however, indicate that positive and negative S-C-Ss are not simply a function of the valence of affirmed and denied traits. Although the tendency is for the positive S-C-S to be composed of socially desirable traits and the negative S-C-S to be composed of socially undesirable traits, the actual valence composition of both S-C-Ss is associated with ego strength. Thus, compared to Ss with low ego strength, those with high ego strength affirm and deny respectively more socially desirable and undesirable traits. Overall, this yields a more extensive socially desirable "I" for the high ego strength S. The latter is further reinforced by the fact that compared to low ego strength Ss, the high affirm fewer socially undesirable traits and deny fewer desirable traits. Considering, then, ego strength, the valence of the predication, and the valence of the predicated traits, it may be said that the "I" of one possessing high ego strength is not only more articulate, but it is also more extensively desirable than the "I" of one possessing low ego strength.

The sex of the S. We have seen that compared to females, male Ss have a significantly wider composite S-C-S (positive plus negative) when all degrees of judgmental certainty are considered. However, this sex difference disappears when only 'very certain'

self predications are tallied. One way of interpreting these findings is to assume that males are more willing than females to affirm or deny self characteristics. In effect, males will 'go out on a limb', whereas females will not. This interpretation is consistent with the results of Wallach and Kogan (1959), who found women to be more conservative than men when unsure of their decisions. In the present case, such sex-linked conservatism leads the female to a more constricted S-C-S when certainty is not a task variable.

Further sex differences in the composition of the S-C-S are found when one considers the valence of the self predicated traits and the ego strength of the Ss. Although all Ss include more socially desirable traits than socially undesirable ones in their S-C-Ss, within the high and low ego strength groups, the male compared to the female includes relatively more socially undesirable traits in his S-C-S. The latter may be confirmed by examining Table III. Here it can be seen that compared to females, males with low ego strength affirm more socially undesirable traits. Since the number of denied socially desirable traits for males and females with low ego strength is not significantly different, it can be inferred that the male S-C-S is relatively more socially undesirable than that of the female. In contrast, the high ego strength male compared to female denies more socially desirable traits. Again, since there is no significant sex difference between the number of affirmed socially undesirable traits within the high ego strength groups, it can be inferred that the high ego strength male compared to the female includes more socially undesirable traits within his S-C-S. Thus, both high and low ego strength males include relatively more socially undesirable traits within their S-C-Ss than respective female groups; however, there are important differences in the means whereby the males of each ego strength group achieve their socially undesirable

S-C-S: The low ego strength male affirms socially undesirable traits, while the high ego strength male denies socially desirable traits. It is as if the former is saying (relatively, of course): "I am bad," whereas the latter is asserting: "I am not good." Now, let us consider the meaning of these sex differences.

The fact that males in the present study have a wider socially undesirable S-C-S than females can be understood in terms of the difficulties encountered in attaining models of masculinity and femininity within our culture. Research indicates that compared to the cultural model for femininity, not only is the male model more difficult to attain, but also there is more pressure brought to bear on the male to attain this cultural stereotype (McKee and Sherriffs, 1959). Now, since the self concept grows as a function of reward and punishment within the social context (Ullman, 1965, p. 140), it follows that the male will have a more differentiated and extensive concept of his inadequacies and consequent socially undesirable qualities than the female whose identification problems are fraught with fewer difficulties and vicissitudes. This, of course, does not mean that the male's self-esteem will be less than that of the female. It only means that the male, compared to the female, entertains a greater number of socially undesirable traits.

The above interpretation, however, must be qualified, for we have seen that when males are classified according to high or low ego strength, the relatively large number of undesirable traits within their S-C-Ss were obtained in quite different ways: The high ego strength male indicates that he does not possess socially desirable traits, while the low ego strength male affirms socially undesirable traits. This finding is explicable in terms of the correlates of ego strength, namely, the capacity for personality integration and the feeling of personal adequacy. The low ego strength male in coping

with the difficulties involved in identifying with his male role, internalizes his frustrations and failures as a function of superego evaluation — "I am bad." Whereas, the high ego strength male sees his difficulties in an ego evaluative, pragmatic manner — "I am not good." In this sense, failure for the low ego strength male would end in self hate, while failure for the high ego strength male would only constitute a decrement in self-esteem.

Conclusions. The findings in this study have met our initial purpose, namely, to expand the empirical meaning of "I" as it is measured by the S-C-S. Thus, we have seen that the S-C-S is related to the ego strength and the sex of the S, as well as to the valence of the self predicated traits. In addition, our results have several implications for further thought and research in this area: First, what an individual is to himself — his "I" — ought not to be considered solely in terms of what he says that he is. The self concept is a composite of what one *is* and what one *is not*. The importance of this distinction is clearly seen in the present study, wherein the positive and negative S-C-Ss are differentially related to the valence of the self predicated traits. Second, as an imperative related to the latter, one ought not to determine the valence characteristics of the self concept by comparing the number of affirmed desirable traits to the number of denied undesirable traits. As we have seen, there are two ways of arriving at a relatively undesirable self: either by affirming socially undesirable traits or by denying socially desirable traits. Depending on the number of affirmed positive and denied negative traits, each method may lead to similar socially undesirable S-C-Ss, but the implications of each S-C-S would be vastly different.

REFERENCES

- Barron, Frank. *Creativity and psychological health*. New York: D. Van Nostrand Co., 1963.

- Gough, H. G. *The adjective check list*. Palo Alto: Consulting Psychologists Press, 1952.
- Mayzner, M. S., and Tresselt, M. Concept span as a composite function of personal values, anxiety, and rigidity. *J. Pers.*, 1955, 24, 20-33.
- McKee, J., and Sherriffs, A. Men's and women's beliefs, ideals, and self concepts. *American Journal of Sociology*, 1959, 64, 356-363.
- Pettigrew, T. F. The measurement and correlates of category width as a cognitive variable. *J. Pers.*, 1958, 26, 532-544.
- Ullman, A. *Sociocultural foundations of personality*. Boston: Houghton Mifflin Co., 1965.
- Wallach, M., and Kogan, N. Sex differences in judgment processes. *J. Pers.*, 1959, 27, 555-564.
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- Received April 2, 1966
Revision received July 14, 1966

Figure Drawing Correlates of Furlough Utilization in an Aged Institutionalized Population¹

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Summary: Fifty-one aged male institutionalized veterans were subjects of a study of the relationship of furlough utilization to three formal dimensions of the human figure drawing, height, area and centeredness. Beta intelligence and chronological age were also included as control variables. Height and area correlated with Beta intelligence but did not correlate with furlough utilization. Centeredness was the only drawing dimension correlating with furlough utilization. This correlation remained even when intelligence and age were partialled out.

Lakin (1956 and 1960), in a series of studies, has concluded that certain formal dimensions of the figure drawing reflect the impact of institutionalization on aged subjects. His final conclusions were derived from a study contrasting the figure drawings of institutionalized and non-institutionalized subjects. He found that the institutionalized aged drew shorter, smaller and less centered drawings than non-institutionalized subjects. He postulated that the protective environment of homes for the aged exacerbated feelings of insignificance, while conversely quasi-independent functioning in the mainstream of society served to sustain feelings of personal significance, and that these feelings of self-esteem were reflected in the figure drawings. If Lakin's conclusions hold, the dimensions of the figure drawing might also reflect the impact of institutionalization on subjects who, while residing within an institution, are differentiated from each other in their attempts to maintain some sort of existence outside the institution.

Lakin did not specifically control for the influence of intelligence on figure drawing, though he did report that the groups were comparable in educational level. The control of intelligence appears necessary since Jones and Rich (1957) have reported

significant and substantial correlations between measures of intelligence and height of drawing.

METHOD

Subjects

Fifty-one male members of the Domiciliary at the V.A. Center, Martinsburg, W. Va., with an average age of 66.7 years served as subjects. The distribution of ages by decades was 40-49 years, two; 50-59 years, two; 60-69 years, thirty; 70-79 years, fifteen; 80-89 years, two. Their years of educational achievement ranged from zero to sixteen years (four years of college) with an average of 7.4 years. The previous occupations of these members were classified as follows: 14 semi-skilled, 11 skilled, 8 unskilled, 6 clerical, 5 service, 5 professional and managerial, and 2 agricultural. The marital status of the group was classified as follows: 19 single, 13 divorced, 9 widowed, 6 separated, and 4 married. All had resided in the Domiciliary continuously from 2 to 14 years. Though all had some disability requiring institutionalization, they were judged by the Domiciliary physician as capable of participating in all activities of daily living and capable of going on furloughs. Records indicated they were free of any psychiatric or neurological disease.

Measure of Community Participation

Behavioral indices of community participation for subjects within the institution are difficult to obtain since

¹This study was supported in part by a grant from the Human Ecology Fund. This paper was presented, in part, at the meeting of the Gerontological Society, Los Angeles, California, on November 12, 1965.

Domiciliary members are judged capable of self-care and hence receive minimal supervision, and systematic observation of their behavior is not considered necessary. However, records of furlough utilization are available and were used in this study as an index of residual community participation or conversely resistance to institutionalization.

Of the group of 51 subjects, there were fourteen who had no record of any furlough behavior with 37 others having taken furloughs from one to 617 days. The median number of furlough days was nineteen.

Procedure for Obtaining Figure Drawings

Each subject was first interviewed and a brief social history obtained. Following this he was given a sheet of 8½ in. x 11 in. paper with the instructions to "Draw a person. Make it a whole person, not just the head and shoulders." Following the completion of the first drawing, he was given a second sheet of paper and instructed to "Draw another person." The subjects were then asked to assign an age and sex to each figure drawn in connection with another study. The Revised Beta Examination (Lindner and Gurvitz, 1946) was then administered individually to each subject and Beta raw scores were obtained.

Figure drawings were measured along the same three dimensions used in Lakin's study. Height to the nearest sixteenth of an inch was measured from the top to bottom of the drawing with a ruler. Area was measured to the nearest tenth of an inch with a geographer's planimeter. Centeredness was measured through the use of a clear plastic grid template with concentric circles on the face ¼ inch apart. As in Lakin's study, centeredness was measured in terms of distance of the center of the drawing from the center of the paper, a higher score representing a less centered figure.

The product-moment correlation technique was used to obtain all simple correlations between the figure drawing variables, the control variables of age and intelligence, and furlough utilization. A multiple regression technique was used to study the combined influence of the variables on furlough utilization.

RESULTS

The height, area, and centeredness scores of the subjects' first drawings correlated significantly with the corresponding scores of the second drawings (r 's of .88, .81, and .86) indicating sufficiently reliable test performance. Further statistical analysis was performed only on the data of the first drawings.

Since the distribution of scores of furlough days was highly skewed, the data was subjected to a logarithmic transformation. In addition, the data was dichotomized into subjects with and without furloughs. No statistical correction was made for length of stay since analysis indicated no relation between length of stay and furloughs for the group. Though both methods of handling the furlough data yielded similar results with the use of simple correlation and multiple regression techniques, the best fit occurred when the furlough scores were classified dichotomously.²

All the correlation coefficients expressing the relationships between the drawing dimensions, furlough utilization (classified dichotomously) and the control variables of age and intelligence are presented in Table I.

From inspection of the table, three

²We are indebted to a number of statistical consultants for their advice on the handling of the data. In particular, we wish to express our appreciation to Dr. Malcolm Turner, Emory University, Atlanta, Ga., Dr. Hans Hoch, V. A. Center, Martinsburg, W. Va., and Dr. James O'Connor, Catholic University of America, Washington, D. C. Some of the data was also processed with the aid of the BIMD 06UCLA program for multiple regression analysis with the assistance of Dr. Hans Hoch.

TABLE I — Product Moment Correlation Coefficients of Figure Drawing Dimensions, Control Variables of Age and Intelligence and Furlough Utilization in 51 Elderly Institutionalized Veterans

| | Height | Area | Centeredness | Beta | Age | Furlough |
|-----|--------|-------|--------------|-------|-------|----------|
| H | | .88** | — .56** | .57** | — .08 | .10 |
| A | | | — .51** | .47** | — .11 | .17 |
| C | | | | — .12 | — .20 | — .44** |
| B | | | | | — .22 | — .13 |
| Age | | | | | | .32* |
| F | | | | | | |

* Significant at .05 level.

** Significant at .01 level.

interesting findings emerge. First as might have been expected, all the drawing variables correlate either highly or moderately with each other. The height and area of the drawing correlate highly with each other (r of .88). Centeredness correlates moderately with both height ($-.58$) and with area ($-.53$).

Of interest, too, is the correlation of some of the drawing variables with the Beta intelligence score. Both height and area correlate significantly (.55 and .46) with intelligence though centeredness does not correlate significantly with this control variable.

Of the three drawing variables studied, only centeredness correlates significantly with the furlough utilization ($r = -.44$) revealing that those subjects with the highest scores, indicating greatest off-centeredness, show least furlough behavior.

To determine whether centeredness correlates with furlough behavior independently of the control variables of age and intelligence, a partial correlation coefficient between centeredness and furloughs was computed. The resulting partial correlation coefficient of $-.43$ is not essentially different from the previous value of $-.44$.

Centeredness also correlates with furlough behavior when the influence of other drawing variables as well as the control variables of age and intelligence were statistically controlled ($r = -.39$).

For purposes of prediction, a multiple regression equation including all

the figure drawing and control variables was run. Though the regression was highly significant, the multiple correlation coefficient of .55 suggests there is no appreciable gain in prediction by utilizing all variables.

DISCUSSION

Lakin had found that three formal drawing dimensions, height, area, and centeredness, differentiated a group of institutionalized and non-institutionalized aged subjects. The present investigation focusing on furlough utilization of aged subjects all residing within an institution, found that only the centeredness drawing dimension correlated with furloughs.

The finding of a relationship between height of drawing and intelligence corroborates the findings of Jones and Rich (1957) who reported that in their elderly population, height of drawing was as good a measure of intelligence as more conventional intelligence tests. This finding underscores the importance of controlling for intelligence in figure drawing studies of elderly institutionalized populations.

The finding of a significant correlation between height of drawing and intelligence does not of course rule out the possibility that there are other factors related to this drawing dimension. The coefficient of determination based on a correlation coefficient of .57 is about .32 suggesting that 68% of the variance is still unaccounted.

Other investigators besides Lakin

have emphasized that height of drawing reflects self-esteem or is negatively related to feelings of depression. Though the evidence on this point is inconclusive and conflicting, as Swenson (1957) indicated in his review, there are occasional studies such as that of Lewinsohn's (1964) recent investigation of psychiatric patients that yields evidence for the relationship. Further research similar to Lewinsohn's is necessary to determine whether the relationship he found for an adult, psychiatric group would also be found in a geriatric, non-psychiatric sample.

In the present study, only the centeredness dimension appeared to bear a significant relationship to furlough utilization. Review of the systematic research on figure drawings does not reveal any clear findings as to psychological processes associated with uncentered drawings. However, various writers have advanced clinical hypotheses. One that may be of most relevance to this study is that of Buck (1948) who has categorized uncentered drawings in terms of the corner in which the figure is placed. He writes that figures drawn in the upper left hand corner are found in subjects who are either markedly anxious or regressed. Inspection of the drawings of the present study indicated that a sizeable number were left corner drawings. If Buck's hypothesis is correct, then the uncentered drawings of the institutional-

ized aged, when left cornered, should be correlated with high scores on valid tests of anxiety and/or regression. If cross validation does indicate the stability of this relationship between uncentered drawings and furlough utilization, then investigation of the relationship of other psychological variables, such as anxiety, to centeredness appears warranted.

REFERENCES

- Buck, J. N. The H-T-P technique. A qualitative and quantitative scoring manual. *J. clin. Psychol. Monogr.*, 1948.
- Jones, W., & Rich, T. A. The Goodenough Draw-A-Man Test as a measure of intelligence in aged adults. *J. consult. Psychol.*, 1957, 21, 235-238.
- Lakin, M. Certain formal characteristics of human figure drawings by institutionalized aged and by normal children. *J. consult Psychol.*, 1956, 20, 471-474.
- Lakin, M. Formal characteristics of human figure drawings by institutionalized and non-institutionalized aged. *J. Geront.*, 1960, 15, 76-78.
- Lewinsohn, P. M. Relationship between height of figure drawing and depression in psychiatric patients. *J. consult. Psychol.*, 1964, 28, 380-381.
- Lindner, R. M., & Gurvitz, M. Restandardization of the Revised Beta Examination to yield the Wechsler type of IQ. *J. appl Psychol.*, 1946, 30, 649-658.
- Swenson, C. H., Jr. Empirical evaluations of human figure drawings. *Psychol. Bull.*, 1957, 54, 431-466.
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Normal Adult Differentiation Patterns On The Figure Drawing Test

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Summary: This study presents the results of figure drawing differentiation using the largest adult sample to date. Two thousand normal Ss who were applicants for a wide variety of jobs and who included 1088 males and 912 females ranging in age from 17 to 59 were administered the Figure Drawing Test. Analysis showed that 76 percent of the entire group drew same-sex figures, although there was a clear difference between the male (85 per cent) and female (67 per cent) samples. Data were further analyzed into age-based cells which showed a definite trend with increased age towards same-sex drawings in the males but not in the females. Overall, more than twice as many (29 per cent) females as males (13 per cent) drew opposite-sex figures, and there were twice as many undifferentiated drawings in the female sample. The findings were considered in the sex-role frame of reference, and suggestions for future research were presented.

PROBLEM

Since the publication of Machover's monograph (1949) on human figure drawings as a method of personality investigation, this projective test has risen to where it was recently rated as second only to the Rorschach in frequency of usage by American clinical psychologists (Sundberg, 1961). Nevertheless, there has not been the concurrent amount of research which such a high order of usage would presuppose; in particular, there has been a comparative paucity of studies dealing with the relationship between the sex of the subject (S) and the sex of the drawing.

Investigations which have been conducted in this area (Feather, 1953; Granick and Smith, 1953; Holtzman, 1952; Mainord, 1953) have indicated that Ss generally draw a figure of the same sex, although the tendency is more for males than females. Most of the few studies dealing with normal (that is, non-psychopathological) adult Ss were based upon a small N, with groups as small as 18 (Frank, 1955) and 19 (Feather, 1953) of the same sex. A brief report by Levy (1950) on several thousand Ss has limited value because no information was provided on the male-female ratio, age range, source of Ss, and other details considered to be important in order for his study to be com-

pared with others. The conclusions drawn from previous investigations were mostly based upon percentages derived from groups which were small in actual number. The studies of psychopathological Ss were also based upon groups of relatively small size (e.g., Hammer, 1954; Barker, 1953).

Most of the research on normal Ss utilized the responses of college students, who as a group present certain limitations and who cannot be considered as representative of the general population. It is also evident that the literature does not contain any study based upon normal Ss in quantity who could meet the criteria of general population representation.

METHOD

It was the purpose of this current study to present findings on a group of two thousand normal Ss drawn from the general population who were applicants for a wide variety of jobs in an industrial employment setting. These ranged from clerks and typists to upper echelon technical and managerial personnel. The sample was selected at random from already existing files which contained a variety of pre-employment assessment protocols obtained during a testing session in which five minutes had been allotted to the figure drawing. The testing personnel who adminis-

tered the assessment battery were all women. As Table I indicates, the age range was 17 to 59 in both male and female groups. There were 1088 male and 912 female Ss, respectively 54 percent and 46 percent of the total N. All were functioning in the community at the time of testing and none had manifest emotional difficulties obvious to the pre-employment screening personnel. Most male Ss fell in the 20-29 age range with the next largest number in the 17-19 bracket, while the majority of the female Ss were in the 17-19 age range with the 20-29 group next.

Each figure drawing was reviewed by the same E, and the sex of the test response noted. Whole and partial figures were acceptable provided that the sex could be recognized, and no consideration was given to those aspects of the drawing which were pertinent to dynamic personality analysis.

RESULTS

In analysis of the total data, 76 percent of all Ss drew a same-sex figure, while 21 percent produced opposite-sex drawings. Undifferentiated figures were drawn by three percent of the total sample.

Table II presents the findings for the 1088 male Ss. These show that 85 percent of males drew a figure of the same sex, while 13 percent drew a female figure. Only 31 protocols could not be differentiated. As the Ss grew

older, there was a definite increase of same-sex drawings, together with a concomitant decrease in opposite-sex figures. It is to be noted, however, that there were relatively fewer Ns in the older age cells. Interestingly, the number of undifferentiated drawings was highest for the 17-19 age group who were mainly high school seniors or recent graduates. This finding may be considered as supporting the general belief that there is uncertainty regarding sex-role at this period of life. As males grow older and presumably more secure in their roles as men, the data indicate that there were decreasing numbers who drew opposite-sex figures. These conclusions merit investigation in future replicated studies.

A lesser number of female Ss (67 percent) produced same-sex drawings, but there were more than twice as many (29 percent) who drew opposite-sex figures (Refer to Table III). In addition, more than twice the percentage of female drawings as male could not be identified as to sex. Perhaps women who are employed in the general labor force in our society perceive that it is "a man's world" and unconsciously seek to identify themselves with this image. The finding that overall twice as many female Ss as males could not produce a clearly differentiated figure suggests greater confusion in feminine identity in our society. In the 30-39

TABLE I — Distribution of Subjects by Age and Sex

| Age Range | 17 - 19 | | 20 - 29 | | 30 - 39 | | 40 - 49 | | 50 - 59 | | Total | |
|-----------|---------|----|---------|----|---------|---|---------|---|---------|---|-------|-----|
| | N | % | N | % | N | % | N | % | N | % | N | % |
| Males | 263 | 24 | 693 | 64 | 88 | 8 | 35 | 3 | 9 | 1 | 1088 | 54 |
| Females | 594 | 65 | 286 | 31 | 19 | 2 | 8 | 1 | 5 | 1 | 912 | 46 |
| Total | 857 | 43 | 979 | 49 | 107 | 5 | 43 | 2 | 14 | 1 | 2000 | 100 |

TABLE II — Figure Drawing Choice by Male Subjects (N = 1088)

| Age Range | 17 - 19 | | 20 - 29 | | 30 - 39 | | 40 - 49 | | 50 - 59 | | Total | |
|------------------|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|-------|-----|
| | N | % | N | % | N | % | N | % | N | % | N | % |
| Same Sex | | | | | | | | | | | | |
| Drawn | 215 | 82 | 580 | 84 | 75 | 85 | 31 | 89 | 9 | 100 | 910 | 85 |
| Opposite Sex | | | | | | | | | | | | |
| Drawn | 36 | 13 | 96 | 14 | 11 | 13 | 4 | 11 | 0 | 0 | 147 | 13 |
| Undifferentiated | 12 | 5 | 17 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 31 | 2 |
| Total | 263 | 100 | 693 | 100 | 88 | 100 | 35 | 100 | 9 | 100 | 1088 | 100 |

TABLE III — Figure Drawing Choice by Female Subjects (N = 912)

| Age Range | 17 - 19 | 20 - 29 | 30 - 39 | 40 - 49 | 50 - 59 | Total | |
|--------------------|---------|---------|---------|---------|---------|-------|---|
| | N | % | N | % | N | % | N |
| Same Sex Drawn | 405 | 68 | 181 | 63 | 13 | 68 | 5 |
| Opposite Sex Drawn | 161 | 27 | 100 | 34 | 5 | 26 | 3 |
| Undifferentiated | 28 | 5 | 5 | 3 | 1 | 6 | 0 |
| Total | 594 | 100 | 286 | 100 | 19 | 100 | 8 |

age bracket, moreover, three times as many women as men drew undifferentiated figures, which could be related to the fact that it is then that many women seek employment for the first time since marriage because their children are grown and there are additional family expenses.

Unlike the male groups, the female Ss showed no progressive change with increased age; in fact, there was the suggestion that female drawings tend to the opposite-sex as the Ss grew older. Assuming that figure drawings reflect sex-identity (Machover, 1949), one might speculate that more women than men become dissatisfied with their role in life as they grow older. A pertinent future study would be one which investigates figure drawing differentiation in women who are experiencing emotional difficulties at menopause and in later life: A general hypothesis would be that these Ss would draw more opposite figures than either their male counterparts in age or women their age who do not present psychological problems.

The results of this present research indicate that normal adults do tend to draw same-sex figures. There are other factors which must be considered in analysis of differentiation patterns, however, and it is evident that the Figure Drawing Test remains a promising area for continued study.

REFERENCES

- Barker, A. J., Mathis, J. K., & Powers, C. A. Drawing characteristics of male homosexuals. *J. clin. Psychol.*, 1953, 9, 185-188.
- Brown, D. G. & Tolor, A. Human Figure drawings as indicators of sexual identification and inversion. *Percept. Mot. Skills*, 1957, 7, 199-211.
- Butler, R. L. & Marcuse, F. L. Sex identification at different ages using the Draw-A-Person Test. *J. proj. Tech.*, 1959, 23, 299-302.
- Feather, D. B. An exploratory study in the use of figure drawings in a group situation. *J. soc. Psychol.*, 1953, 37, 163-170.
- Fisher, G. M. Relationship between diagnosis of neuropsychiatric disorder, sexual deviation, and the sex of the first-drawn figure. *Percept. Mot. Skills*, 1959, 9, 47-50.
- Frank, G. H. A test of the use of a figure drawing test as an indicator of sexual inversion. *Psychol. Rep.*, 1955, 1, 137-138.
- Gilbert, J. & Hall, M. R. Changes with age in human figure drawing. *J. Gerontol.*, 1962, 17, 440-441.
- Granick, S. & Smith, L. J. Sex sequence in the Draw-A-Person Test and its relation to the MMPI Masculinity-Femininity Scale. *J. consult. Psychol.*, 1953, 17, 71-73.
- Hammer, E. F. Relationship between diagnosis of psychosexual pathology and the sex of the first-drawn person. *J. clin. Psychol.*, 1954, 10, 168-170.
- Holtzman, W. H. The examiner as a variable in the Draw-A-Person Test. *J. consult. Psychol.*, 1952, 16, 145-148.
- Levy, S. Figure drawings as a projective test. In L. E. Abt & L. Bellak (Eds.) *Projective Psychology: Clinical Approaches to the Total Personality*. New York: Knopf, 1950. Pp. 257-297.
- Machover, K. *Personality projection in the drawing of the human figure*. Springfield: Charles C. Thomas, 1949.
- Mainord, F. R. A note on the use of figure drawings in the diagnosis of sexual inversion. *J. clin. Psychol.*, 1953, 9, 188-189.
- Starr, S. & Marcuse, F. L. Reliability in the Draw-A-Person Test. *J. proj. Tech.*, 1959, 23, 83-85.
- Sundberg, N. The practice of psychological testing in clinical services in the United States. *Amer. Psychologist*, 1961, 16, 79-83.
- Swenson, S. Empirical evaluations of human figure drawings. *Psychol. Bull.*, 1957, 54, 431-466.
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KTSA Symbolization Norms For School-Age Children¹

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Summary: This paper presents the first set of detailed KTSA norms for children's Number Element (N.E.) and Symbolization scores. The study was based on a random stratified sample of 240 dependents of military personnel. Correlation between KTSA scores and normal developmental trends in children's abstractive abilities were noted, as well as significant positive correlations between IQ and N.E. at all ages. Differences between the present findings and Kahn's early work were presented and discussed. It is proposed that Kahn's formula for estimating the minimal expected N.E. be replaced by the appropriate age X minus two S.D.'s. Several clinically derived interpretive hypotheses, as well as future directions for research and test improvement were suggested.

The Kahn Test of Symbol Arrangement (KTSA) has been used clinically for more than ten years; yet, to date, a set of complete norms for children is not available. Exploratory studies with children suggest that the KTSA is sensitive to emotional and social maladjustment (Kahn, 1957; Evans, 1958; Wagner, 1963; Bates, 1960). In light of the potential value of the test, a systematic program of research designed to develop norms has been undertaken (Abidin, 1966).

The KTSA is administered by requesting the subject to make five successive arrangements of 15 plastic objects on a felt strip which is divided into 15 segments. The first two arrangements are made in any way the subject wishes, with a subsequent inquiry into whether he had a specific reason for arranging the objects the way he did. The subject is asked to name the objects after the first arrangement, and to state what they represent, symbolize or mean to him after the second arrangement. The third ar-

range ment involves recall of the second, while in the fourth arrangement the objects are placed in order of preference and the subject is requested to explain the reason behind the placement of the three extreme positive and negative choices. The fifth arrangement is made in any way the subject wishes, with a subsequent inquiry as to the reasoning behind the arrangement. Following the five arrangements and the subject's verbal productions, he is requested to sort the 15 objects into eight categories (love, hate, bad, good, living, dead, small, large). All objects need not be placed, neither does every category have to be filled.

This paper reports on children's Number Element (N.E.) and Symbolization scores, which are the semi-objective aspects of the KTSA. During the administration of the test the subject makes 24 verbal responses which are scorable into nine symbolization categories. The categories include bizarre responses (scored A); I don't know (B); repeated responses (C); naming or stating a function of the object (D); responses based on shape, appearance, appeal or beauty (E); responses based on color (F); stimulus-bound, concrete associations involving the physical characteristics of the object (X); tangible abstractions, not stimulus-bound and hence not directly involving the physical characteristics of the test object (Y); intangible abstractions, complete freedom from

¹The author acknowledges the assistance of the technicians of the Psychology Service, Wilford Hall USAF Hospital, for the collection and scoring of the KTSA protocols, in particular Alan J. Guerin and Alfred V. Byrne. The valuable assistance of Mr. Dan Lurie, Mathematical Statistician, Biometrics, Aerospace Medical Division (AFSC), Brooks AFB, is also acknowledged.

The author will make available upon request a detailed set of symbolization score norms along with some clinically derived interpretive hypotheses.

shape and material substance (Z). Each category is given a weight varying from 0 for A responses to 8 for Z responses. The N.E. is obtained by adding the sum of the weighted scores for each category. A more complete description of the KTSA and the method of administration and scoring may be found in the test manuals (Kahn, 1956, 1957).

DESCRIPTION OF SAMPLE

The present norms are based on a random stratified sample of 240 child dependents of military personnel at Lackland Air Force Base, Texas. Twenty boys and 20 girls from grades two through seven were selected from the Lackland Elementary and Junior High School. These children represented diverse backgrounds with regard to race, religion, and educational-occupational level of their parents. The mean Otis Quick Score IQ was 103.8, S.D. 12.4. A two-way analysis of variance was performed and no significant differences in IQ were found by age, sex, or age x sex interaction.

RESULTS

A two-way analysis of variance of

the N.E. scores, derivatives of the weighted symbolization scores, disclosed neither significant sex differences nor a significant age x sex interaction. Differences between age means were significant at $P < .001$. Ranking the means produced a generally increasing monotonic relationship (Table I).

Pearson product-moment correlations between Otis IQ and KTSA N.E. were significant at .01 or lower (r pooled = .736, Table II).

A two-way analysis of variance was conducted on the nine symbolization scores, the factors being age, and age x sex interaction. No age x sex interaction was significant and B score was the only variable in which the sex effect was significant ($P < .01$). Examination of the B score means revealed that the B scores for males are higher across all ages examined. It was decided to pool the sexes and perform a non-parametric analysis (H test) to serve as a check on the results of the parametric analysis (Table III).

Age differences were found to be significant at .05 or lower for scores B, C, E, F, X and Z. Ranking the means

TABLE I—Children's KTSA NE Norms*

| | Age | | | | | |
|---------------------------|------|------|------|-------|-------|-------|
| | 7-8 | 8-9 | 9-10 | 10-11 | 11-12 | 12-13 |
| Min. Exp. NE ^b | 45.0 | 51.0 | 57.0 | 63.0 | 69.0 | 75.0 |
| Mean NE | 74.6 | 79.3 | 81.3 | 87.1 | 100.9 | 97.2 |
| SD | 17.4 | 17.4 | 17.4 | 17.4 | 17.4 | 17.4 |

*N=240; 40 per age group, 20 per sex.

^bThe minimal expected NE as proposed by Kahn (1957) = chronological age x 6 plus number of months x .5.

TABLE II—Correlation Coefficients for NE and IQ Scores (Otis)

| Age | 7 | 8 | 9 | 10 | 11 | 12 | Pooled |
|-------|------|------|------|------|------|------|--------|
| Coef. | .625 | .639 | .690 | .837 | .739 | .818 | .736 |

TABLE III—Summary of Analysis of Variance of the Various Symbolization Scores

| | A | B | C | D | E | F | X | Y | Z | NE |
|-----------|----|-------|-------|----|-------|-------|-------|----|--------|--------|
| Age | ns | P<.01 | P<.05 | ns | P<.05 | P<.05 | P<.05 | ns | P<.001 | P<.001 |
| Sex | ns | P<.01 | ns | ns | ns | ns | ns | ns | ns | ns |
| Age x Sex | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns |

Note: A one-way non-parametric analysis (H Test, Kruskal-Wallis), (Siegel, 1956) was performed on the data. The results revealed the same significant differences as were obtained from the parametric analysis. The only exception was the E score, where the two-way analysis of variance detected a significant difference at the .01 level, and the H Test at the .05 level.

TABLE IV—Symbolization Scores, Age Means when Data are Grouped in Two-Year Intervals

| Age | A | B | C | D | E | F | X | Y | Z |
|---------|-----|------|------|------|------|------|------|------|------|
| 7 & 8 | .36 | 3.00 | 3.59 | 2.83 | 1.23 | .96 | 7.34 | 4.55 | .54 |
| 9 & 10 | .42 | 2.89 | 2.59 | 2.79 | 1.73 | 1.30 | 6.56 | 4.98 | 1.35 |
| 11 & 12 | .32 | 1.84 | 3.04 | 2.48 | 1.73 | 1.74 | 5.28 | 4.99 | 3.79 |

TABLE V—Results of Least Significant Difference Test Comparison Between Age-Groups for Each Symbolization Score and N.E.

| Age Comparisons | Symbolization Scores | | | | | | | | | |
|-------------------|----------------------|-----|-----|----|-----|-----|-----|----|------|------|
| | A | B | C | D | E | F | X | Y | Z | N.E. |
| 7 + 8 vs 9 + 10 | NS | NS | .05 | NS | .05 | NS | NS | NS | .05 | .01 |
| 9 + 10 vs 11 + 12 | NS | .01 | NS | NS | NS | NS | .05 | NS | .001 | .001 |
| 7 + 8 vs 11 + 12 | NS | .01 | NS | NS | .05 | .05 | .05 | NS | .001 | .001 |

for each score failed to reveal a monotonic increasing or decreasing relationship between score means and age. However, monotonic relationships were manifested when the means were grouped by two year intervals for scores B, D, F, X, Y and Z.

A series of comparisons was made between the three pooled age groups for each symbolization score and N.E. using the Least Significant Difference (LSD) Test (Steel and Torrie, 1960) with the restriction that in no instance would the significance level of the LSD Test be smaller than the significance level which was detected for the age factors in the corresponding analysis of variance.

The data in Tables I and II indicate a general increase in the magnitude of the mean N.E. with age and a relatively high correlation of N.E. with IQ (r pooled = .736). Fink and Kahn (1959) reported a statistically significant correlation ($P < .01$) of .46 between mental age and N.E. One factor which could possibly explain the discrepancy in the correlations obtained by Fink and Kahn and the present study is the fragmented method they employed to obtain mental age estimates. In the clinical manual, Kahn states: "Many different types of tests were used to obtain the mental ages and some of these tests are not very

highly correlated. . . . In some cases we had to estimate the IQ from vocabulary performance on the Stanford-Binet." (P. 160).

In the clinical manual, Kahn reported the mean N.E. for age groups comparable to the present sample. All of the N.E.'s reported by Kahn are below those of the present sample. This difference may be accounted for by possible differences in intelligence between the groups. This would be in line with the above discussion on the relationship of N.E. to mental age. Reanalysis of data reported by Kenny (1962) indicates essential agreement between that portion of the N.E. age norms presented in Table I which overlaps with his sample. His data yielded the following mean N.E. values: Age 10-11, 84.3; Age 12-13, 105.9; Age 14-15, 96.5. Both the Kenny data and the present study indicate a continuous rise in the N.E. up until the onset of adolescence, and then a slight drop occurs. This drop in the mean N.E. could possibly be explained on the basis that normal early adolescents are generally less cooperative and more antagonistic to authority figures than are younger children, and hence their test motivation may be somewhat lower. Examination of symbolization age norms indicates a rise in the frequency of "I don't know" responses

for 12 to 13 year olds. Since the B score has next to the lowest weighting, and the 24 verbal responses are scored in a mutually exclusive fashion, a rise in B scores will produce a concomitant decrease in other scores and hence the lowered N.E. The data in Table I regarding obtained and minimal expected N.E. suggest considerable weakness in the formula for expected N.E. proposed by Kahn. Using the Kahn formula for the minimal expected N.E., it was found that the N.E.'s produced deviated from the obtained means in an unsystematic fashion. For clinical and research purposes, it would appear most reasonable to use as the minimal expected N.E. the mean for an age group minus two standard deviations ($\text{Min. Exp. N.E.} = X - 2 \text{ S.D.}$; Table I).

The present findings reveal certain systematic shifts in the abstractive abilities, the thinking and language of children (Tables IV and V). These shifts occur in the directions predicted by the literature (Inhelder and Piaget, 1958; Harvey, Hunt, and Schroder, 1961; Lewis, 1963). At seven and eight years of age, the child's primary mode of responding is to produce concrete associations (X) or naming responses (D). This tendency is markedly reduced in favor of completely abstract responses (Z) by 11 and 12 years of age. The reduction of "Same as before" responses (C) to similar shaped objects suggests increasing refinement with age of the child's perceptual and conceptual discrimination schemas. Conversely, but congruent with the child's development, is the increase in E (shape-material) and F (color) responses. Hence, the older child not only displays a greater ability to deal with his environment, by using verbal abstractions, but he also reveals a greater sensitivity to its physical characteristics. The above discussion of the findings has been primarily descriptive; however, the findings are congruent with the theoretical notions of Werner and Kaplan (1963) and of

Strauss and Kephart (1955) regarding the development of language and symbolic thought processes.

If these changes are indeed a reflection of development trends in the abstractive abilities and language development of children, then logical deduction would suggest the possibility that emotional maladjustment would have a detrimental effect upon (a) the N.E. and (b) Symbolization scores. This is based on the assumption that "... genetically, abstraction is to a degree an adaptive function of the organism. Accordingly, difficulties in making abstractions will often be consequent or related to faults of an adaptation rather than limitation in reasoning ability." (Wechsler, 1958, p. 183).

The notion of a connection between the quality of an individual's verbal responses and his emotional adjustment has been repeatedly presented in the literature (Jersild, 1963; McCarthy, 1963; Watson, 1959). Preliminary research tentatively confirms the hypothesis that emotionally disturbed children produce lower N.E.'s than normals, with more A, B, C and D responses and less Y and Z responses (Kahn, 1957; Kenny, 1962).

Analysis of the symbolization norms discloses several weaknesses in the test. Most serious is that the range of possible and obtained scores is very limited; in a few scoring categories the modal response is zero, particularly at the younger age levels. These factors seriously hinder the statistical and clinical analysis of the data. Difficulties experienced in the scoring of protocols, most outstandingly the discrimination between D and X, suggest the need to adapt the scoring system to children's responses.

The foregoing findings have indicated that intelligence is positively correlated with the N.E. and Symbolization scores. Therefore it is reasonable to assume that any clinical interpretation made from the test will have to consider this factor. Mental retard-

ation will produce a lower N.E. and lower Symbolization score. However, it has been our experience that a differential diagnosis is possible; genuine mentally retarded children typically produce fewer B and Y responses and practically no Z responses. Clinical experience suggests that children who are strongly motivated by aggressive impulses typically produce a high number of B scores ("I don't know" responses).

The findings of the present study suggest the potential value of the KTSA in evaluating the abstractive abilities of children and the development of these attributes. In light of the preceding discussion, future investigators might consider researching the test's value in the diagnosis of cortical pathology in children. It seems reasonable to expect the N.E. and Symbolization scores to reflect such pathology when it impairs verbal abstractive functions. Other aspects of the KTSA such as object orientation, recall and naming in adult work have been found to aid in the diagnosis of cortical pathology (Kahn, 1955; L'Abate, Vogler, Friedman, & Chused, 1963; Nacowski and Byrne, 1965).

REFERENCES

- Abidin, R. R. KTSA sorting norms for school-age children. *J. clin. Psychol.*, 1966, 22, 85-90.
- Bates, J. B. Use of the Kahn Test of Symbol Arrangement with adolescents. Unpublished M.A. thesis, Illinois State Normal University, 1960.
- Evans, W. R. Performance of delinquents and nondelinquents on the KTSA. Unpublished M.A. thesis, Marshall College, 1958.
- Fink, H. H., and Kahn, T. C. A comparison of normal and emotionally ill children on the KTSA. *J. Educ. Res.*, 1959, 53, 35-36.
- Harvey, O. J., Hunt, D. E., and Schroder, H. M. *Conceptual systems and personality organization*. New York: John Wiley & Sons, 1961.
- Inhelder, B., and Piaget, J. *The growth of logical thinking: From childhood to adolescence*. New York: Basic Books, 1958.
- Jersild, A. T. Emotional development. *Manual of Child Psychology*. Carmichael, L. (Ed.), New York: John Wiley & Sons, 1963, 2nd Ed.
- Kahn, T. C. Cross validation of the organic brain pathology scale for a test of symbol arrangement. *J. consult. Psychol.*, 1955, 19, 130.
- Kahn, T. C. Kahn Test of Symbol Arrangement: Administration and scoring. *Percept. motor Skills*, 1956, 4, 299-334.
- Kahn, T. C. The Kahn Test of Symbol Arrangement: Clinical manual. *Percept. mot. Skills*, 1957, 7, 97-168.
- Kenny, J. A. Maladjusted children: A comparison of 216 normal and maladjusted children on the basis of psychological tests. Unpublished doctoral dissertation, Johannes Gutenberg University, Mainz, Germany, 1962.
- L'Abate, L., Vogler, R. E., Friedman, W. H., & Chused, T. M. The diagnostic usefulness of two tests of brain damage. *J. clin. Psychol.*, 1963, 19, 87-91.
- Lewis, M. M. *Language, thought and personality in infancy and childhood*. New York: Basic Books, 1963.
- McCarthy, D. (Ed.) *Language development in children. Manual of child psychology*. Carmichael, L. New York: John Wiley & Sons, 1963, 2nd Ed., 492-630.
- Nacowski, R. M., and Byrne, A. V. Considerations in frontal-lobe evaluations with a note on the KTSA. *Proc. of the 12th Conf. of Air Force Behavioral Scientists, USAF School of Aerospace Medicine, Brooks AFB, Texas*, 1965.
- Siegel, S. *Nonparametric statistics*. New York: McGraw-Hill, 1956.
- Steel, R. G. D., and Torrie, J. H. *Principles and procedures of statistics*. New York: McGraw-Hill, 1960, p. 106.
- Strauss, A. A., and Kephart, N. C. *Psychopathology and education of the brain-injured child*. New York: Grune and Stratton, 1955.
- Wagner, R. *Diagnostic guide for the Kahn Test of Symbol Arrangement as used with adolescents*. (Preliminary Ed.) Richmond, Va.: Richmond Public Schools, 1963.
- Watson, R. I. *Psychology of the child*. New York: John Wiley & Sons, 1959.
- Wechsler, D. *The measurement and appraisal of adult intelligence*. Baltimore: Williams and Wilkins, 1958, p. 183.
- Werner, H., and Kaplan, B. *Symbol formation*. New York: John Wiley & Sons, 1963.
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Received March 12, 1966

Revision received May 24, 1966

Color and Its Relation to Personality: The TAT

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Summary: Thirty student nurses in each of four subgroups viewed TAT cards projected on a screen. Half the group wrote stories to five of the original achromatic cards, while half responded to a chromatic version. Further, half of the group was tested during their first week of psychiatric training, while the other half was a twelfth week training group.

All stories were analyzed for emotional tone, outcome and number of words. The results indicated a predominant negative tone and outcome for all cards and conditions, but with longer and somewhat more positive stories told to the chromatic pictures. Significant differences were also obtained between the two training groups. The greatest source of variance, however, was contributed by card differences, *per se*. It was concluded that color did have at least a subtle effect on fantasy production.

Since Rorschach's early work with his psychodiagnostic test, (1942) numerous investigations have been concerned with the significance of color, and its contribution towards an understanding of the emotions. According to Schachtel (1943), color is perceived without effort, requires little of the perceiver and is essentially a passive process. The perception of color is also characterized by the immediacy of the object-subject relationship, for as he indicates, "Color seizes the eye, but the eye grasps form (p. 396)." Rapaport, Gill and Schafer (1946) go as far as to state that "Dependent upon their organization of affects and impulses and their modes of control of these, individuals have associative processes which allow for dealing with the color impressions in a specific manner characteristic of their affective life (p. 238)." Various studies with the Rorschach have attempted to relate S's reactions to color and their overt behavior in other situations. This research has centered on responsivity to color and such factors as impulsivity (Rosenthal, 1962), awareness of the environment (Mann, 1956) and reaction time (Meyer, 1951; Allen, 1951).

As a result of research with the

TAT, Brackbill (1951), Thompson and Bachrach (1951), Lubin (1955) and Lubin and Wilson (1956) have found significant differences in favor of colored cards when total verbal productivity was used as the criterion and Brackbill (1951) also noted an increase in reaction time to the chromatic cards. While Atkins (1962) found no differences in the effect of the color variable with "normal" kindergarten children her data indicated that a subgroup of children who were more "emotionally disturbed" showed a heightened reaction to color, giving more positive and negative emotional words than the healthier children. Her data also pointed to an interaction between color and "style." Those children who told richer stories responded with a greater number of positive emotional words and intraceptive comments to the color cards, while those who told poorer stories showed no difference.

Lubin and Wilson (1956) tested handicapped and normal children with colored and black and white cards depicting handicapped children. They found the handicapped responded better to the colored cards, while the normals responded better to the achromatic cards. They con-

cluded that when the subject was "psychologically involved" in the task, color tended to increase identification. Brackbill (1951) reports the most extensive findings in regard to differences in reaction to color by normals and psychoneurotics. The psychoneurotic group told more depressed stories to the chromatic cards than they did to the achromatic series, while the normals showed no such increase. They did however, show a significant decrease in stories classified as "Intellectual" and "Destructive" and more stories classified as "Other" (happy, neutral or shifting mood). The psychoneurotics also had significantly larger reaction times to the colored cards, while the normals showed no such differences. The author felt the findings could be ascribed to the effectiveness of color in stimulating the expression of the subject's present mood state and that it facilitated the arousal and expression of unpleasant emotional associations.

Goldfried and Zax in a recent study (1965) have employed the semantic differential technique to determine the stimulus value of the TAT. Ten polar adjectives rated on a seven point scale were used and chosen to be appropriate to a substantial number of the 30 TAT cards. Significant differences were noted for many of the comparisons. They concluded that those cards with a "weak pull" (cards 1 & 2) allowed an individual to tell something about himself, while for those cards with a "strong pull" (cards 3BM, 4 and 13MF), the resulting fantasy productions were likely to be more a factor of the stimulus itself than the person's unconscious.

In studying the role of color and the TAT Johnson and Dana (1965) found that color as a major variable didn't significantly affect performance, although it was related to the order of presentation of the chromatic and achromatic series and a factor in differences between males and females. There were however, no systematic

differences by subjects for the series of five TAT cards.

Despite the utilization of a counter-balanced design, administration of the standard and colored sets of the TAT to the same subjects in a number of the prior studies have rendered the results questionable. Past research has indeed offered the promise of a significant contribution of color as a variable but comparatively little has been done to systematically study its more subtle effects. Many of the studies concerned with color as a variable including the recent one by Johnson and Dana, fail for example, to include any information on the nature of card differences. The interaction of the cards themselves and the specific independent variable of color therefore then fails to receive any attention.

This present research therefore studied the effects of color on TAT performance specifically considering card differences as a variable.

METHOD

Subjects

One hundred and twenty student nurses served as Ss. Half the group was tested in their first week of psychiatric training at the Institute of Living and half in their twelfth week of training. The former Ss were tested before they had received any didactic instruction in psychological methods or test procedures, while the latter had received at least some introduction to the subject and were familiar with the basics of projective tests. All the students were female, approximately twenty years of age and in their third year of nursing training. The nurses were told that this was a research project and that their cooperation was being sought. The research was described as a study of the type of stories that young adults would tell to pictures. The names of the respondents were not required and the anonymous nature of their productions was stressed.

Test Stimuli

Five cards from the standard set of the Murray TAT cards (1, 2, 3BM, 4, 13MF) hand painted by an artist¹ were photographed on 35mm color film and slides made from the film. Slides were also obtained of the corresponding set of original black and white cards.

Test Administration

Each of the two training groups of sixty students was randomly divided into two subgroups. All of the subgroups were homogeneous as regards the variables age, education and nursing experience. Thirty of the students were shown the chromatic slides and thirty the achromatic slides. The order of presentation of the slides was randomized for the different groups. After being told of the nature of the study, the students were instructed as follows: "I am now going to show you some slides and want you to make up a story about what you see. Your story should include the following four areas, but not necessarily in the order mentioned. Describe what is happening; what led up to what is taking place and what the outcome will be. I also want you to tell what the people in the story are thinking and feeling. Here is the first slide."

The four requirements of the story were also listed on a blackboard in front of the room and at least two times during the session, the examiner re-read them to the group. The room was only partially darkened and sufficient light provided for the students to be able to write their stories without difficulty. After each slide was exposed for four minutes the subjects were informed of the time and told to finish their stories in the minute remaining.

Scoring System

The method of scoring each story

for "emotional tone" and "outcome" were taken almost completely from Eron (1950). The only additions that were made were to expand the range of scores for those cards which Eron had initially felt could be rated on the basis of two, three or four categories instead of the usual five. Each story was rated twice on a five point scale from -2 to +2, once for emotional tone and once for outcome. The zero rating was set aside for those stories of a "neutral" nature. Each story has its own set of standards for rating the emotional tone of the story. For the outcome however, only general standards were scored, rather than utilizing specific outcomes for the individual cards. In addition to the five point scale for the outcome ratings, two other categories were used; an "X" to indicate stories failing to give an outcome and a "?" for those where outcomes were conditional (if outcomes) or presenting alternative outcomes. A third dependent variable, number of words, was also utilized. This measure of productivity employing a straight forward word count was determined for each story. All protocols were rated by the senior author after a pilot study of fifteen cases indicated high agreement between the two authors.

RESULTS

The Effects of Color:

Table I presents the results of Median tests comparing the emotional tone and outcome of the color and black and white cards by training groups. In all the comparisons for emotional tone between the color and black and white cards, the former was more positive. Chi square analysis indicated that Ss in their twelfth week of training told stories to color card 3BM which were significantly more positive than those to the black and white pictures. For the total sample, only the two versions of card 3BM were differentiated on the basis of emotional tone. Many of the subgroups however, showed trends at the

¹The authors would like to express their appreciation to Dr. Brackbill for the use of these painted cards.

.10 and .20 level in the expected direction. For the outcome ratings the achromatic and chromatic presentations of cards 1, 3BM and 13MF were discriminated at less than the .05 level.

Analysis of Variance (Table II) indicated that stories told to the colored cards were longer than those told to the black and white cards, but the overall differences were significant at only the .10 level. When we look at the differences by individual card and training group, the following results are obtained. For all sub-

groups, the stories told to the colored cards are longer. Duncan Range Tests reveal differences for cards 1 and 3BM significant at less than the .05 and the .01 level respectively (Table I). For nurses in their first week of training, the longer stories to cards 1, 3BM, and 13MF are significantly differentiated on the basis of the stimulus characteristics, while for the twelfth week of training, only the differences for card 3BM are significant (Table I).

Training:

The emotional tone and the out-

TABLE I — Results of Tests of Significance for Emotional Tone, Outcome and Number of Words; by Stimulus Group Chromatic vs Achromatic

| | Emotional Tone | Outcome | Number of Words |
|--------|--------------------|--------------|-----------------------|
| | | Card 1 | |
| Week 1 | — (C) ^a | <.20 (C) | <.01 (C) ^b |
| 12 | <.10 (C) | <.20 (B & W) | — (C) |
| Total | <.20 (C) | <.05 (C) | <.05 (C) |
| | | Card 2 | |
| 1 | <.20 (C) | — (B & W) | — (C) |
| 12 | — (C) | — (C) | — (C) |
| Total | <.10 (C) | — (C) | — (C) |
| | | Card 3BM | |
| 1 | — (C) | <.20 (C) | <.01 (C) |
| 12 | <.01 (C) | <.10 (C) | <.01 (C) |
| Total | <.05 (C) | <.01 (C) | <.01 (C) |
| | | Card 4 | |
| 1 | — (C) | — (C) | — (C) |
| 12 | — (C) | — (B & W) | — (C) |
| Total | — (C) | — (C) | — (C) |
| | | Card 13MF | |
| 1 | — (C) | <.10 (B & W) | <.05 (C) |
| 12 | — (C) | <.01 (C) | — (C) |
| Total | — (C) | <.02 (C) | — (C) |

^aRefers to subgroup with more positive or less negative value

^bRefers to subgroup with longer stories

TABLE II — Analysis of Variance for Number of Words

| Source of Variance | Degrees of Freedom | Mean Square | F | P |
|--------------------|--------------------|-------------|-------|-------|
| S (Stimuli) | 1 | 4,050.35 | 3.60 | <.10 |
| T (Training) | 1 | 3,141.88 | 2.79 | <.10 |
| SXT | 1 | 555.34 | — | — |
| Ss/ST (Error) | 116 | 1,124.21 | — | — |
| Total Between | 119 | — | — | — |
| C (Cards) | 4 | 5,546.25 | 25.38 | <.001 |
| CXS | 4 | 229.82 | — | — |
| CXT | 4 | 834.00 | 3.82 | <.01 |
| CXSXT | 4 | 253.78 | — | — |
| SsXC/ST (Error) | 464 | 218.51 | — | — |
| Total Within | 480 | — | — | — |
| Grand Total | 599 | — | — | — |

come ratings for the stories tend to be more positive for Ss in their twelfth week of training as compared with those in their first week. Significant differences in emotional tone as a function of training are noted for the colored card 3BM and for both the achromatic and chromatic versions of this card combined (Table III). There were no significant differences in emotional tone between the themes of the training groups for any of the black and white cards. For the outcome ratings, only card 13MF elicits significant differences on the basis of training. The outcome ratings for this card were significantly more positive for those in the earlier stages of their training, for the chromatic series, the achromatic series and for the total group (Table III).

Analysis of variance (Table II) indicated that stories told by the twelfth week group tended to be shorter than those told by the first week group, but the overall differences were significant at only the .10 level. Analyses by Duncan Range Tests (Table III) of the specific sub-

groups indicated that all of the significant differences between the two training groups occurred on card 1 where the stories to the chromatic card, the achromatic card and both versions of the card taken together were significantly shorter for those in their twelfth week of training.

The Nature of the Stimulus:

As can be seen from Table IV, the ratings for both the emotional tone and the outcome of the stories for all subgroups were predominantly negative in tone. More specifically, the order of the ratings for emotional tone was cards 2, 1, 4, 3BM and 13MF in the direction of becoming progressively more negative. The results for the ratings for the outcome of the stories are in a similar direction, namely cards 2, 1, 3BM, 4 and 13MF, from positive to negative (Table IV). All the outcomes are more positive (or less negative) than the corresponding emotional tone.

Analysis of Variance (Table II) indicates that overall card differences are highly significant when the de-

TABLE III — Results of Tests of Significance for Emotional Tone, Outcome and Number of Words; by Training Group
1st Week vs 12th Week

| Stimulus | Emotional Tone | Outcome | Number of Words |
|------------|-----------------------|-------------|------------------------|
| | | Card 1 | |
| Chromatic | — (12th) ^a | — (12th) | .01 (1st) ^b |
| Achromatic | — (12th) | <.20 (12th) | .01 (1st) |
| Total | — (12th) | — (12th) | .01 (1st) |
| | | Card 2 | |
| Chromatic | — (12th) | — (12th) | — (1st) |
| Achromatic | — (12th) | — (1st) | — (1st) |
| Total | <.10 (12th) | — (12th) | — (1st) |
| | | Card 3BM | |
| Chromatic | <.01 (12th) | — (same) | — (12th) |
| Achromatic | — (12th) | — (12th) | — (1st) |
| Total | <.05 (12th) | <.20 (12th) | — (12th) |
| | | Card 4 | |
| Chromatic | — (12th) | <.20 (1st) | — (1st) |
| Achromatic | — (1st) | — (12th) | — (1st) |
| Total | — (1st) | — (1st) | — (1st) |
| | | Card 13MF | |
| Chromatic | — (12th) | <.01 (1st) | — (1st) |
| Achromatic | — (12th) | <.10 (1st) | — (12th) |
| Total | — (12th) | <.02 (1st) | — (1st) |

^aRefers to subgroup with more positive or less negative value

^bRefers to subgroup with longer stories

pendent variable is number of words. Duncan Range Tests (Edwards, 1960) indicate that cards 3BM, and 13MF, the most hostile and negatively emotional cards were the shortest stories with a mean number of words of 66.01 and 70.76 respectively, and were significantly shorter than cards 2 or 4. They were also shorter than card 1, but the difference was not statistically significant. The stories told to

card 4 were also significantly longer than those told to card 1. In determining the significance of the differences in emotional tone between the various cards, the Sign Test (Siegel, 1956) was used. This test provides information concerning the direction of differences between pairs of cards. Table V indicates that all differences are significant at the .01 level except for card 2 versus card 1 which is signifi-

TABLE IV — Percentage of Subjects Offering Stories with the Various Emotion Tone (ET) and Outcome Ratings (O), Mean Scaled Scores and Mean Number of Words Produced; by Stimulus and Training Group

| and Mean Number of Words Produced, by Stimulus and Rating Group | | | | | | | | | | | | | | Mean Scaled Score (O) | Mean Number of Words |
|---|--------|-----|----|-----|----|------------------------|---------|------------|----|----|----|----|----|-----------------------|----------------------|
| Emotional Tone (ET) | | | | | | Mean Scaled Score (ET) | Outcome | | | | | | | | |
| Card 1 | | | | | | | | | | | | | | | |
| Group | Rating | | | | | | -2, -1, | 0, +1, +2, | X, | ? | | | | | |
| | -2, | -1, | 0, | +1, | +2 | | | | | | | | | | |
| C | 00 | 53 | 42 | 02 | 03 | -.45 | 00 | 10 | 46 | 27 | 03 | 12 | 03 | +.31 | 74.13 |
| B&W | 00 | 70 | 25 | 03 | 02 | -.61 | 00 | 25 | 35 | 12 | 05 | 15 | 08 | +.02 | 68.18 |
| 1st | 00 | 67 | 32 | 00 | 02 | -.63 | 00 | 22 | 40 | 15 | 02 | 12 | 10 | -.03 | 77.93 |
| 12th | 00 | 57 | 35 | 05 | 03 | -.43 | 00 | 13 | 40 | 23 | 07 | 15 | 02 | +.36 | 64.39 |
| Total | 00 | 61 | 33 | 03 | 03 | -.53 | 00 | 18 | 40 | 20 | 04 | 13 | 06 | +.17 | 71.16 |
| Card 2 | | | | | | | | | | | | | | | |
| C | 00 | 38 | 40 | 20 | 02 | -.15 | 00 | 15 | 22 | 22 | 03 | 33 | 05 | +.22 | 84.17 |
| B&W | 00 | 55 | 32 | 07 | 07 | +.32 | 03 | 15 | 23 | 20 | 03 | 32 | 03 | +.08 | 81.43 |
| 1st | 00 | 55 | 35 | 07 | 03 | -.42 | 02 | 15 | 23 | 20 | 03 | 30 | 07 | +.14 | 84.95 |
| 12th | 00 | 38 | 37 | 20 | 05 | -.05 | 02 | 15 | 22 | 22 | 03 | 35 | 03 | +.16 | 82.32 |
| Total | 00 | 47 | 36 | 13 | 04 | -.24 | 02 | 15 | 22 | 21 | 03 | 33 | 05 | +.15 | 82.80 |
| Card 3BM | | | | | | | | | | | | | | | |
| C | 27 | 52 | 20 | 02 | 00 | -1.03 | 00 | 08 | 50 | 27 | 02 | 07 | 07 | +.25 | 70.85 |
| B&W | 30 | 68 | 02 | 00 | 00 | -1.29 | 05 | 27 | 27 | 24 | 05 | 07 | 07 | -.04 | 61.17 |
| 1st | 32 | 63 | 03 | 02 | 00 | -1.25 | 02 | 20 | 33 | 20 | 05 | 10 | 10 | +.09 | 65.95 |
| 12th | 25 | 57 | 18 | 00 | 00 | -1.07 | 03 | 15 | 43 | 30 | 02 | 03 | 03 | +.13 | 66.07 |
| Total | 28 | 60 | 11 | 01 | 00 | -1.16 | 03 | 18 | 38 | 25 | 03 | 07 | 07 | +.11 | 66.01 |
| Card 4 | | | | | | | | | | | | | | | |
| C | 05 | 95 | 00 | 00 | 00 | -1.05 | 00 | 25 | 23 | 22 | 00 | 18 | 12 | -.02 | 80.93 |
| B&W | 12 | 84 | 02 | 02 | 00 | -1.24 | 05 | 25 | 28 | 28 | 00 | 07 | 07 | -.07 | 77.07 |
| 1st | 12 | 88 | 00 | 00 | 00 | -1.12 | 02 | 22 | 23 | 25 | 00 | 13 | 15 | +.01 | 80.70 |
| 12th | 05 | 91 | 02 | 02 | 00 | -1.17 | 03 | 28 | 28 | 25 | 00 | 12 | 13 | -.11 | 77.30 |
| Total | 08 | 90 | 01 | 01 | 00 | -1.15 | 03 | 25 | 26 | 25 | 00 | 12 | 09 | -.06 | 79.00 |
| Card 13MF | | | | | | | | | | | | | | | |
| C | 47 | 45 | 07 | 02 | 00 | -1.37 | 30 | 33 | 13 | 12 | 00 | 10 | 02 | -.94 | 72.30 |
| B&W | 68 | 25 | 07 | 00 | 00 | -1.62 | 32 | 12 | 20 | 03 | 00 | 25 | 08 | -1.03 | 68.89 |
| 1st | 63 | 32 | 05 | 00 | 00 | -1.58 | 23 | 22 | 18 | 03 | 00 | 27 | 07 | -.94 | 71.63 |
| 12th | 52 | 38 | 08 | 02 | 00 | -1.40 | 38 | 23 | 15 | 12 | 00 | 08 | 03 | -1.04 | 69.89 |
| Total | 57 | 35 | 07 | 01 | 00 | -1.49 | 39 | 22 | 17 | 08 | 00 | 18 | 05 | -.99 | 70.76 |

Note: Decimal points have been eliminated to save space

TABLE V — Results of Sign Tests for Card Differences: Emotional Tone

| Card | 2 | 1 | 4 | 3BM | 13MF |
|------|---|------|------|------|------|
| 2 | — | <.02 | <.01 | <.01 | <.01 |
| 1 | — | — | <.01 | <.01 | <.01 |
| 4 | — | — | — | <.01 | <.01 |
| 3BM | — | — | — | — | <.01 |

cant at the .02 level. In all cases, the significant results refer to the more negative or less positive emotional tone of the horizontal member of the pair.

Differences between the cards in the value of the outcomes are for the most part less apparent than for the emotional tone. In addition, many of the differences between card pairs are ties, that is, of equal value. Further, for many card pairs, comparisons could not be made due to the fact that one or both of the members did not have an outcome or was a conditional or "if" outcome.

DISCUSSION

Even a cursory exploration of the manner in which color affects resulting fantasy indicates that qualitatively, reactions are different and that Ss do offer spontaneous comments regarding this variable. More frequent mention is made of the female in card 4; the breasts of the woman in 13MF become more obvious and elicit comments and responses of a sexual nature. Whether identification is heightened by the color and leads to further personal involvement or conversely, tends to institute defensive measures in response to psychic stimulation is clearly a matter of further research efforts.

On the basis of this research, we can certainly conclude that color as a variable does exert at least a subtle effect on fantasy production and to some extent this effect may be responsible for significant changes in the nature of the fantasy (the content) and in the amount of productivity. What is lacking, of course, is some measure, not of the more formal changes that occur with modification of the stimulus characteristics but of the qualitative and often non-quantifiable aspects that clinicians refer to as having "interpretive significance."

Increased training influenced performance by heightening the differences due to the specific stimuli for emotional tone and outcome, and

narrowing the differences for the number of words. Greater training leads to shorter stories and fewer differences in story length between chromatic and achromatic cards, while it contributes towards more positive stories and greater differences in tone and outcome between the two sets of cards.

It appears as if greater familiarity with the mentally ill and the nature of psychological tests and psychodynamics contributes not only to nurses becoming more sophisticated and better informed, but also leads to increasing guardedness in "revealing themselves" and the utilization of repressive defenses.

Noted on a qualitative basis is that many of the student nurses in their twelfth week of training used as a theme for some of their stories, suicide and mental illness, as well as doctor-patient contacts and seeking help for problems. What is suggested therefore, is that in many cases, the emotional significance of the content is extremely high for the twelfth week group but their outcomes reveal greater attempts at resolution of the problems or conflicts depicted in the stories. It would be interesting in further studies to compare those who do and do not show this pattern with success in the nursing program. While increasing concern with psychiatry, mental illness and mental health is to be expected among nurses who are suddenly exposed to the unique problems of the mentally ill, it is felt that the way in which they deal with this concern may serve to distinguish the successful from the non-successful psychiatric nurse.

It is also interesting to note that an extremely large percentage of the Ss perceived the character depicted in 3BM as a female. For the first week color group, the first week black and white group, the twelfth week color group and the twelfth week black and white group, the percentage of females perceived were 63, 63, 73, and 53 respectively. Eron (1953) reported

that approximately 50% of his Ss showed some confusion over the sex of the figure in card 3BM. Most Ss immediately responded with a perception of the figure as female with only few recording doubt. In clinical practice such uniformity of results is not found and the question of the effect that a large group of females has on performance, as well as the specific qualities that this group of Ss presents, justifiably should be raised. Further, we might begin to test those who "deviate" from this pattern and study those female psychiatric student nurses whose perception of this figure is of a male.

Almost all studies concerned with the TAT have indicated that many of the cards elicit stories characterized by negative emotionality. The present findings are thus in agreement with those of Dollin (1960) and Eron (1953). Of significance, is that the order of the ratings for emotional tone, namely, cards 2, 1, 4, 3BM and 13MF is identical to that obtained by Murstein (1961) when he scaled the TAT cards for hostility. It is possible that the "pull" of the individual cards as arranged in the direction of increasing hostility is one of the major variables in determining the emotional tone of the resulting fantasy productions.

As we have indicated above, the nature of the outcomes are typically more positive than the general emotional tone of the stories themselves. It is almost as if the more positive outcomes were direct efforts at "undoing" the negative emotional tone of the Ss fantasies and returning them to a less emotional state.

In clinical research in general and in the TAT research in particular, both the nature of the S's performance and the type of dependent variable utilized to measure differences, greatly affects our being able to "observe" differences. It would be expected that individuals characterized by impulse disorders as manifested in behavioral assaultiveness, schizo-affec-

tive disorders and psychopathy would show a heightened sensitivity to the presence of color in a TAT picture. Future research might profitably study these diagnostic groups and TAT performance. The problem that presents itself is of course, of differentiating between information of a personal psychic nature and those more formal changes which may serve to distinguish groups of individuals.

REFERENCES

- Allen, R. M., Mane, S. H. & Staff, M. The role of color in Rorschach's test. *J. proj. Tech.*, 1951, 15, 235-242.
- Atkins, Merrilee. Color as a variable in a picture-story test for young children. 1962, Senior Honors Thesis, Univer. of Massachusetts.
- Brackbill, G. A. Some effects of color on thematic fantasy. *J. consult. Psychol.*, 1951, 15, 412-418.
- Dollin, Adelaide P. The effect of order of presentation on perception of the TAT pictures. Unpublished doctoral dissertation, Univer. of Connecticut, 1960.
- Edwards, A. *Experimental design in psychological research*. New York: Holt, Rinehart & Winston, 1960.
- Eron, L. D. A normative study of the Thematic Apperception Test. *Psychol. Monogr.*, 1950, 64, No. 9.
- Eron, L. D. Responses of women to the Thematic Apperception Test. *J. consult. Psychol.*, 1953, 17, 269-282.
- Goldfried, M. R. & Zax, M. The stimulus value of the TAT. *J. proj. Tech.*, 1965, 29, 46-58.
- Johnson, A. W. & Dana, R. A. Color on the TAT. *J. proj. Tech.*, 1965, 29, 178-183.
- Lubin, N. M. The effect of color in the TAT on production of mentally retarded subjects. *Amer. J. ment. Def.*, 1955, 60, 366-370.
- Lubin, N. M. & Wilson, M. D. Picture test identification as a function of "reality" (color) and similarity of picture to subject. *J. gen. Psychol.*, 1956, 54, 331-38.
- Mann, L. The relation of Rorschach indices of extratension and introversion to a measure of responsiveness to the immediate environment. *J. consult. Psychol.*, 1956, 20, 114-118.
- Meyer, B. T. An investigation of color shock in the Rorschach test. *J. clin. Psychol.*, 1951, 7, 367-370.
- Murstein, B. I., David, Charlotte, Fisher, D., & Furth, H. The scaling of the TAT for hostility by a variety of scaling methods. *J. consult. Psychol.*, 1961, 25, 497-504.
- Rapaport, D., Gill, M., & Schafer, R. *Diag-*

- nostic Psychological Testing*. Vol I. Chicago: Year Book Publishers, 1946.
- Rorschach, H. *Psychodiagnostics*, (4th ed.) tr P. Lemkau, & B. Kronenberg; (Ed.) W. Morgenthaler. Bern: Huber, 1942.
- Rosenthal, M. Some behavioral correlates of the Rorschach experience balance. *J. proj. Tech.*, 1962, 26, 442-446.
- Schachtel, E. On color and affect. *Psychiat.*, 1943, 6, 393-409.
- Siegel, S. *Non Parametric Statistics*. New York: McGraw Hill, 1956.
- Thompson, C. E. & Bachrach, H. J. The use of color in the TAT. *J. proj. Tech.*, 1951, 15, 173-184.
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- Received December 22, 1965
Revision received April 22, 1966

Professional Identity and Impulse Expression in Phantasy

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Summary: Mathematicians, poets and psychologists could be identified from their stories to TAT cards 11 and 19. Characteristic content and organization were, in turn, related to differences in life goals, cognitive style, self structure, and attitudes towards impulse. The modal mathematician is oriented towards the objective physical world, maintains a clear self boundary, expresses concern and disorganization at emerging hostile impulse. Psychologists deal with inter-individual conflict; the contrast between ego and alien impulse is more neutral, and impulse is integrated into behavior. The poet explores and structures identity and self contents, shows greater access to primary process, minimal concern with self boundaries, and his products express the interpenetration of realistic and unrealistic, acceptable and gruesome elements.

Exploration of the psychological meaning of work in human life remains in its infancy. In early psychoanalytic writing, the gratification offered by work received little attention. The ideal state was conceived as fetal immobility, while work connoted discomfort, deprivation, and the sacrifice of individual gratification for the common good (Riesman, 1950; Oberndorf, 1951; Brill, 1918). Work pleasure was viewed as relief from superego pressures, while the influence of infantile drive derivatives on professional choice was interpreted in the light of psychopathology (Lantos, 1952; Brill, 1918). With the development of ego psychology, other values of work were recognized. Erikson (1946, 1956) discusses the contribution of work to the functioning of the ego, and its importance in establishing and maintaining a stable identity.

Experimental approaches to the problem have often focused on the relationship of childhood experiences to the personality characteristics of various professional groups (Nachmann, 1960; Segal, 1961; Galinsky, 1963), as these experiences have determined prepotent drive systems. In contrast to such a genetic approach, this study emphasizes a functional viewpoint.

We have aimed to describe, for three professional groups — mathematicians, poets and psychologists —

based on their phantasy productions, their characteristic styles of impulse regulation that may permeate both phantasy life and action: how and where impulse may emerge; its control, management and integration in behavior, and how these patterns of ego-id integration may dovetail with the activities and satisfactions afforded by a profession.

At this exploratory stage, an early psychoanalytic model of the structure and function of the self seems to offer the most viable framework for integrating the dimensions assessed here. In early development, as the parental social environment plays upon the responsiveness of the child, acceptable and rationalized impulses, memories and percepts become incorporated as part of the ego while those which increase anxiety are cast out of the ego, and relegated to the id. Gradually, through this introjection-projection process, an ego boundary is made.

We hypothesized, following a preliminary study of phantasy productions, that mathematicians develop a strong ego boundary, focus their interests on activities in the external world and, when confronted by ego-alien impulse, experience threat and temporary disorganization. Psychologists also form clear ego boundaries, but they retain more awareness of impulse. Their struggles between ac-

ceptable and unacceptable, between rational and irrational modes of thought, are carried on more openly and impulse is integrated into behavior or planfully avoided. For the poet, there is no distinct ego boundary; he identifies with his own impulse life in phantasy. Rather than defending against the inner-determined and the poorly rationalized, he allows these elements to figure prominently in awareness while he focuses away from external reality upon his inner life.

The purpose of the study was (1) to test the hypothesis that mathematicians, psychologists, and poets could be identified by inferring the S's ego structure from stories written to cards 11 and 19 of the Thematic Apperception Test and (2) to develop a set of codes that would isolate the critical features of the stories that had bearing on the initial hypotheses and which we believed to be the basis of identification.

METHOD

Subjects

The Ss represent "pre-professionals" — individuals who had just begun their specialization, as graduate students in mathematics and psychology, or who were undergraduate or graduate student poets. Mathematicians were selected without regard to their sub-area of interest. Psychologists were in the clinical, developmental and social areas. Poets were selected through faculty recommendations; several were winners of the University's Hopwood Awards. All Ss, invited to participate, had an opportunity to decline. They were paid \$3 for a two-hour testing session. Table I summarizes the sample size, age and sex distribution of the Ss.

TABLE I—Characteristics of the Sample

| | Math. | | Psych. | | Poets | |
|---------|-------|------------|--------|------------|-------|------------|
| | N | Median Age | N | Median Age | N | Median Age |
| Males | 14 | 22 | 14 | 22 | 15 | 20 |
| Females | 9 | 22 | 9 | 23 | 12 | 20 |

Procedure

Ss were informed briefly that the research concerned differences in problem solving and imagination as factors in professional choice. They filled out an information sheet describing age, professional field, and areas of secondary interest. Cards 11 and 19 of the TAT were then presented, in that order, as a "Story Telling Test," with standard instructions. Three other tasks of an exploratory nature were then presented. Finally, the Strong Vocational Interest Blank (Male Form) was completed by 57 Ss.

Stimulus Materials

The lack of clarity, vagueness of structure and deep shading of cards 11 and 19 often evoke for Ss suggestions of threatening, primitively aggressive impulses, so that these percepts have the character of a confrontation with potentially destructive elements within the personality.

Card 11 is described by Murray (1943) as a "road skirting a deep chasm between high cliffs. On the road in the distance are obscure figures. Protruding from the rock on one side is the long head of a dragon." Frequent interpretations specify the figures on the road as men, and the dragon as a dinosaur or archaic beast. The ego-id integration pattern was evaluated on the basis of the relationship between the hero (generally, the ego) on the one hand, and the threatening dragon and elemental, unsocialized rocky surroundings (the impulse life of the id), on the other hand. The inclined road, further, frequently suggests an effortful journey or return, so that stories lend themselves to an interpretation of their authors' characteristic life enterprises and goals of striving.

Card 19 is a "weird picture of cloud formations overhanging a snow-covered cabin in the country," (Murray, 1943). The cabin may also be interpreted as a boat at sea. Stories to this card generally deal with the fate of the house or boat, or of its imagin-

ed inhabitants in relation to the surrounding world. It is possible to conceptualize the cabin or boat as the ego, in the presence of potentially threatening, externalized impulses — the 'weird cloud formations' which are often interpreted as ghosts or other-worldly animals.

RESULTS

Prediction of Professional Interests from TAT Stories

The two *Es* independently predicted the professional orientation of each *S* from the two stories, with no additional information. One *E* was able to identify the occupations of the men better than chance ($p=.01$ for 42 *Ss*), while the other judged the stories at the chance level. Neither *E* identified the professional interests of women better than chance.

Differences and Overlap among Professional Groups

The professional groups could be further defined by their profiles on the Strong Vocational Interest Blank (SVIB) and by their areas of secondary interest and hobbies. Individuals may seek to enter a profession for many reasons besides the intrinsic work pleasure they anticipate. Again, people with multifaceted interests may be drawn to several occupations. Thus, group differences might be obscured. For example, one Psych *S* had been an undergraduate mathematics major and writes poetry.

One question that may be raised is, how distinct in fact were these groups of pre-professionals in their interests. The individual SVIB scales that should discriminate them are those for Psychologist, Mathematician and Author-Journalist. Mean scores of each

group appear in Table II, for men and women combined, since sex differences here proved negligible.

The Author-Journalist scale reliably discriminated Poets from the other groups ($p < .01$). The Psychologist scale similarly discriminated Psychologists from Poets and Mathematicians ($p = .02$). Mathematicians were the most heterogeneous and least discriminable on the appropriate SVIB scale. The Mathematician score is neither first nor second highest for any Mathematician *S*.

Pattern analysis of the SVIB, according to the procedure of Korn and Parker (1962), reveals distinctive and rather similar profiles for Psychologists and Poets, but a random set of patterns for Mathematicians. All but 9% of the entire sample attained at least one primary pattern.

Poets' interests centered not only on occupations emphasizing verbal facility (author-journalist, lawyer, advertising man), but also those representing a high level of expertise, and a theoretical orientation toward the social environment (physician, psychologist, architect, etc.). Most Psychologists, too, had an investment in verbal activities. Their theoretical concerns, however, extended as often to the physical environment (physicist, chemist, mathematician) as to the human. They more often endorsed service occupations that signify less interpersonal distance, than did Poets. Among Mathematicians, only men preferred occupations in the physical sciences; the women tended to reject these while endorsing theoretical interests in the social sphere.

Judgments of the TAT stories correlate more highly with the highest

TABLE II—Mean Scores on Individual SVIB Scales

| SVIB Scale | Math. N = 16 | | Psych. N = 21 | | Poets N = 20 | |
|-------------------|-----------------|------|------------------|------|-----------------|------|
| | Mean | S.D. | Mean | S.D. | Mean | S.D. |
| Mathematician | 35.5 | 7.8 | 31.8 | 11.6 | 32.6 | 9.4 |
| Psychologist | 39.6 | 10.6 | 48.5 | 7.8 | 44.6 | 9.6 |
| Author-Journalist | 33.2 | 6.9 | 43.1 | 6.7 | 51.8 | 7.8 |

SVIB scale than with overt professional choice; for Ss for whom both the SVIB and TATs are available, *E* predicted the highest SVIB scale in 52% of all cases, as compared with 45% correct identifications of actual professional status.

Again, prediction was greatly improved by taking into account creative writing hobbies of Ss in other fields. The evidence suggests that any criteria which minimized the overlap of interests, contributed also to sharper differences in the sets of projective stories.

At the same time, "pure cases" were atypical of this sample, and multiple interests were actually the rule rather than the exception. The average number of primary and secondary SVIB interest patterns was 2.1 for Maths, 2.4 for Poets, and 2.7 for Psychologists. Half the Poets had in fact chosen fields other than literature as college majors: pre-med, architecture, political science, philosophy, etc. Half of the male and 90% of the female Psychologists listed writing as a current or past leisure activity. These groups contrast with Mathematicians who rarely named an alternate area of study; no Mathematicians currently were writing, and only 22% listed writing as a former hobby.

Qualitative Differences in TAT Stories

Since these results suggested that discriminable characteristics distinguished the stories of each group, an attempt was now made to specify these and relate them to the theoretical model that had guided the initial judgments. A set of written codes was developed by the two *Es*, and a third judge¹, without knowledge of the professional identities of the Ss nor of the expected correlations between the several dimensions, undertook to code the same stories. The results that fol-

low, then, do not offer an independent test of the codings, nor do they validate a relationship between personality constructs and the story elements; they do, however, provide a description of the phantasy productions of the three groups based on more than impressionistic appraisal.

Ego Boundaries. The first hypothesis related to the strength of ego boundaries, between the self and the reservoir of unacceptable impulses. We predicted Mathematicians would have the strongest boundaries, maintaining the sharpest distinction between admissible and unacceptable thoughts; in Psychologists, boundaries would be strongly emphasized but the external forces would appear less frightening to them; Poets would show minimal boundaries.

The state of ego boundaries was evaluated from the stories to card 19. Interpreting the dwelling as symbolizing "ego" and the threatening ghosts as impulse, we interpreted concern with the walls of the house as referring to concerns over ego boundaries. Three levels of intensity of concern were specified, as described in the codes of Table III.

While overlap is considerable, and not all stories could be coded, preferred story elements emerge for each group, and these preferences in general differ as predicted. The modal Mathematician perceives the dwelling as threatened by "bad" external forces. Psychologists, more often than others, emphasize the contrast between inside and outside without indicating the press of outer forces; or, infrequently, they omit reference to boundaries. Poets show least concern with the boundaries of the dwelling.

Differences in ego boundaries would have as a corollary differences in cognitive functioning, in terms of the balance of primary and secondary process. We hypothesized that, as boundary strength decreases, the ego would be more permeable to regressive modes of thought, more tolerant of inner-determined, non-rational pro-

¹Our special gratitude is due to Dr. Jerree Pawl who coded the most part of the data, and to Miss Naomi Lohr who coded the story actions.

TABLE III—Concern over Ego Boundaries of Three Professional Groups

| Code | Maths. | Psychs. | Poets |
|--|-------------|-------------|-------------|
| | N = 23 % | N = 23 % | N = 27 % |
| 1. Threat at the Boundary. Threat to house is specified by emphasis on safety of house, or external threat, e.g., a sturdy house; people safe inside; wind howls at corners; demon threatens house. | 39 | 22 | 15 |
| 2. Contrast between Inside and Outside. Evil, cold is outside but not threatening boundary, e.g., emphasis on warmth, comfort inside (not safety); wind howls outside (not at corners of house); snow piles up outside (not weighs on roof); supernatural or evil is outside (not seeking entry). | 17 | 30 | 18 |
| 3. Lack of Emphasis on Boundary. A dwelling (or boat) but no reference to boundary, to protection against threat, or contrast of inside with outside. | 22 | 44 | 52 |
| 4. No Code. House or other structure not mentioned, hence not codable for boundaries. | 22 | 4 | 15 |

cesses. Card 11 stories, which generally had more elaborate action sequences, lent themselves to coding on the dimension of plot organization. Loose organization was interpreted as a resort to more primary modes of thinking, and it was predicted that Poets would show the greatest, Psychologists an intermediate, and Mathematicians the least access to primary process.

Stories were coded as either having "integrated or rationalized story sequences," or as "poorly rationalized, with illogical action sequences, e.g., inadequately explained changes in behavior, motivation, feeling, attitude, setting, or orientation of story teller; introduction of characters, feelings, objects, etc., without appropriate explanation."

The trend of the results confirmed the prediction: 37% of Poets, 22% of Psychologists and no Mathematicians produced stories rated as lacking in integration. Another code, specifying shifts in identity, intended to tap the same cognitive style, failed to discriminate the groups.

The Confrontation with Impulse. The second set of hypotheses concerned the willingness of the Ss to confront their own impulse life as pro-

jected upon the ambiguous stimulation of the TAT cards, and the outcome of this confrontation. We predicted that the groups would not differ in their willingness to deal with impulse, but rather they would differ in their characteristic ways of integrating impulse into behavior. It was hypothesized that Mathematicians experience threat and temporary disorganization; Psychologists attempt to train impulse to more socialized aims or to planfully avoid it; Poets are more often acceptant of impulse.

The Ss' use of the dragon of card 11 and the weird clouds of card 19 was interpreted as willingness to recognize alien impulse. In stories to card 11, 73% of Poets, 78% of Mathematicians and 78% of Psychologists used the critical dragon percept in their stories. These results accord with the predicted null difference. However, for card 19, the weird clouds are used and identified as evil or frightening by only 26% of Poets, 35% of Mathematicians and 48% of Psychologists.

It is notable that, where the dragon or clouds are not used, the element of threat is nevertheless usually retained in the phantasy. It is then typically referred by Mathematicians to nature in general, by Poets to human agents,

and by Psychologists to the supernatural beings of fairy tales.

The effect of emerging impulse, as producing disorganization of behavior, was rated for card 11 as "any mention of suddenness of emergence of any threat (even if later it seems safe) and/or any expressed helplessness, freezing, startle, but not simply the mention of fear." Mathematicians were predicted highest on this code, Psychologists intermediate, and Poets lowest. Here, sex differences were prominent: 43% of all the women, without respect to profession, expressed disorganization. Among males, the proportions differed for groups: Mathematicians, 50%; Poets, 33%; and Psychologist, 21%.

In view of the forebodings the dragon arouses in most of the stories, it is striking that for only 28% of Psychologists and about 5% of Poets and Mathematicians does the dragon actually "devour anyone or anything." Instead, "he appears and causes fright" (20% of all groups); or "attacks but withdraws or is destroyed" (preferred by Mathematicians and Psychologists), while Poets perceive the dragon as "observing or inactive." (20%)

A first categorization of the stories in terms of how impulse is avoided, trained or accepted was cast specifically in terms of the handling of the dragon of card 11 and the ghosts of card 19. This coding yielded quite small frequencies that failed to point up any trends in the data, for the number of categories was large, and the stories which omitted dragon or ghosts could not be rated. A later attempt was made to develop a more

general set of codes. It was hypothesized that (1) Psychologists would, more frequently than other groups, express themes of an active struggle with some real or imagined danger in which any hostile resistant force would be ensnared, captured, tamed or socialized — or, alternatively, annihilated, circumvented or fled from; (2) Poets would more frequently accept, perceive as attractive, identify with or fuse with (e.g. by being unresistantly eaten) some inner or outer threat or danger; (3) Mathematicians would confront but not directly engage with a hostile threat.

The results of this coding, which unlike the others were not independent "blind" judgments, are merely suggestive; they do indicate some support for these formulations. They are summarized in Table IV.

About half the stories produced by Psychologists deal with the attempt to control or destroy some danger. About 74% of Psychologists produced at least one story containing such a theme — as did 65% of Mathematicians but only 19% of Poets. Of the stories by Mathematicians, about 43% dealt with the confrontation without engagement with a presumed hostile external force, although another third closely resembled the stories of Psychologists. About 50% of Ss in the Mathematics group produced at least one story in this category, as did 56% of Poets and 43% of Psychologists. Few stories from any group could be coded as acceptant and welcoming toward danger, but Poets' stories more frequently than others included such themes. Of the Poets, 41% wrote at least one such story, in contrast to

TABLE IV—Reactions to Threat in Phantasy of Three Professional Groups

| Code | Percentage of Stories by | | |
|--|--------------------------|-------------------|-----------------|
| | Maths. N = 46 | Psychs. N = 46 | Poets N = 54 |
| 1. Control, Avoid or Destroy Hostile Force. | 35 | 48 | 13 |
| 2. Accept, Identify with, or Fuse with Hostile Force. | 2 | 6 | 24 |
| 3. Confront but not Engage with Hostile Force. | 43 | 26 | 39 |
| 4. No Code. No Inner or Outer Threat Mentioned or Suggested. | 20 | 20 | 24 |

13% of Psychologists and 4% of Mathematicians.

Focus of Action. A third set of hypotheses dealt with differences between the groups in their concern with the "objective" external world. Mathematicians in terms of cognitive style and implicit values were conceived as striving towards tangible accomplishment in a world of public reality. Poets were conceived, in contrast, as focusing their interest primarily on more private inner concerns. And the focus of Psychologists was thought to be neither on the inner nor on the outer world, but on the struggle to integrate the inner with external social reality.

We believed two dimensions of the stories expressed these concerns and values — the main action of the phantasy, and the realm in which it proceeded.

The stimulus properties of card 11, with their suggestion of effort and transition, seemed to evoke especially elaborate and varied productions;

these provided rich material for the interpretation of the significant activities that preoccupied the Ss. The codes reproduced in Table V specify the most basic plot framework, of the story's present time. (Subplots and stories within the story were not coded.)

In terms of modal frequencies, Poets prefer the exploration of states of mind, the search for identity and for the significance of being, or else they resort to aimless adventures that merely hover on the edge of meaning. Psychologists focus on the self counterposed to the forces outside it, the clash of man against nature in the search for food, of man against man or animal, animal against animal. For instance, while Ss in all groups occasionally interpreted card 11 as the scene of world destruction, only Psychologists ever represented the holocaust in the narrative present. Mathematicians also depict strife, and symbolic quests but, more often than other groups, they deal with themes of exploration and accomplishment.

TABLE V—Focus of Action in Stories to Card 11 of Three Professional Groups

| Code | Maths. N = 23 | Psychs. N = 23 | Poets N = 27 |
|---|------------------|-------------------|-----------------|
| | % | % | % |
| 1. Explore Reality. Hero aims to explore an unknown physical reality—earth, outer space—or accomplish some hitherto unrealized good. | 17 | 4 | 4 |
| 2. Flee to Safety, Go Home. Hero aims to return home after any enterprise that took him from home, homeland, village; or he takes flight from environmental danger. | 9 | 30 | 15 |
| 3. Hunt Food, Do Battle. Hero engages in a clash of forces—man vs. nature in search of food, supplies; man vs. man or animal, or animal vs. animal, with connotation of fight for control, power, struggle for survival. | 35 | 44 | 22 |
| 4. Confront Self. Hero aims to achieve his identity, expressed as a quest for moral significance, self conquest, self definition or unification, or merging of self with other or with disparate parts of self. | 30 | 17 | 41 |
| 5. Adventure in Irreality. Hero engages in unspecified, nonsensical or circular activity without reference to a real world. | 0 | 0 | 11 |
| 6. Remain Static. Future or past action is only hinted, story present lacks action, is mainly descriptive, while hero remains passive or observant if present at all. | 9 | 5 | 7 |

The actual story settings of both card 11 and 19 stories offer another measure of the focus of the Ss' endeavors. Three codes were developed similar in most respects for the two cards. These, with the obtained frequencies, are reproduced in Table VI.

The modal frequencies suggest that for Mathematicians, the significant realm of action is the objective public world, ordered and limited by physical laws. In contrast, the Poets' domain is the interior mutable world of private phantasy or the freely elaborated mythic past, where realistic and unrealistic elements may be capriciously mingled — "imaginary gardens with real toads in them." The Psychologists choose both of these realms — but also a third. For Card 11, it is the "science fiction" backdrop of a prehistoric or futuristic world and, for card 19, the traditional fairy tale.

DISCUSSION

The modal personalities of mathematician, psychologist and poet emerging from these analyses in large measure confirm and extend the original hypotheses.

The modal psychologist is distinguished by his clearly established ego-id boundary, his less intense concern with threat to its integrity (as in Table III) and his more open representation of the relation of ego and id (Table V). He is familiar with, not startled by, his own impulse life. Occasionally, he may feel an affectionate acceptance: "Don Carlos was in the habit of strolling through a secluded canyon to sniff black orchids and visit his pet dragon, It." But more often it is an embattled and continuing awareness: "The man fights defensively . . . the lizzard (sic) punting this way and that, trying to get in for the kill . . ." In his conceptual schema for existence, the psychologist's concern is the clash of warring forces. The battle against impulse is joined in the familiar, socially defined territory where public reality and private reflection meet (see Table VI). His hero, certain in his self integrity, advances upon projected dangers with the aim of capture and transformation, or annihilation (see Table IV). Malevolence, when it is experienced as within, is transformed to the

TABLE VI—The Settings of Projective Stories of Three Professional Groups

| Code | Maths. | Males | | Poets | Maths. | Females | | Poets |
|---|-------------|------------------------|--|-------------|------------|-----------------------|--|-------------|
| | N = 14 % | Psychs. N = 14 % | | N = 15 % | N = 9 % | Psychs. N = 9 % | | N = 12 % |
| 1. Realistic. Real places, realistic landscape even when geographical location is unspecified. | 50 | 28 | | 30 | 17 | 17 | | 37 |
| 2. Phantastic. Historic, mythic or unreal, story happens in dim past or mythic time or action occurs in unspecific, impressionistic setting, dream, daydream, or art production. | 28 | 39 | | 64 | 50 | 39 | | 46 |
| 3. Prehistoric, Futuristic or Fairy Tale. Action in specific prehistoric time on earth or after some future debacle; on another planet; tale of witches, elves, fairies, cute animated objects, hauntings, any mention of Halloween. | 22 | 33 | | 6 | 33 | 44 | | 17 |

"supernatural," integrated into the still socially ordered phantasy world of science fiction or fairy tale (see Table VI), and sometimes rendered harmless by its encapsulation in "make-believe."

After this night of reckless abandon, they [the dark spirits] will gladly subject themselves to the witch for another year (until next Halloween).

The mathematician, suggested by the intercorrelations between codings, is engaged in the exploration of reality, or in strife (see Table V). Beginning his well-organized journey in the word of familiar, nameable reality (as in Table VI), his confrontation with impulse occurs when he leaves home (map and special equipment in hand) and enters upon foreign territory. These polarities are expressed in terms of known and unknown, accessible and inaccessible, human and non-human.

... tantalized by the far-off glimpse of blue, he has determined to leave his pit and dare unknown terrors ...

... a man and woman ... have been travelling in an unknown area ... in search of a new life ... it was more than adventure that brought them to ... this cliff with a dragon coming out after them ...

... the region was for practical purposes, inaccessible and uninhabited ... [he] had noticed [it] ... just before he crossed the subrange dividing the plateau from accessible country ... he checked his equipment and began to explore ...

As he engages in his work of observing and uncovering, impulse emerges and the mathematician experiences startle — ranging from momentary astonishment to helpless disorganization — "Startled, he jerked up ...", or, at the extreme, "The horrible size and appearance of this monster has knocked them to the ground. They are completely helpless now ..."

The expedition may spell success or disaster for the self. But even in the most catastrophic outcomes, primitive aggression is foiled (see Table IV). It is only the appearance of the monster that disorganizes. The hero, when he dies, falls victim not to the dinosaur,

but to fear itself, or to some superordinate power that destroys both.

Hence we see him yielding and throwing himself into the fiery pit.

The beast closes in ... suddenly a tremendous fissure in the earth's surface opens and both hunter and hunted [lose] their lives.

The polarities of the known and unknown also structure the more static representations of inner and outer, evoked by card 19 (see Table III). Against disowned threatening impulse—"The big black snow clouds seemed to be engulfing (sic) the house" — the mathematician fortifies the self so that impulse batters in vain against the defensive boundary. Impulse can be outfaced, forced to withdraw into its accustomed darkness.

The cave was dry but the cold air whistled through the place ... he had built the cave to stand anything and it had just held up to its biggest threat.

Jake, the sea serpent ... reared up, gave the sub his most terrifying expression and watched with concern as it failed to panic. That blasted periscope just wouldn't look his way ... in frustration he ... headed for the Black Sea.

The modal poet faces his impulse life upon the inward landscape of his own memories, phantasies, and the value-steeped myths and symbols of his culture (see Table V).

My journeys as a vagabond, a man of many memories, whose ideas come only from memory, have led me ...

The poet Blake was walking through peaceful, measured English countryside but his mind was wandering through the nightmare caverns of his etchings.

This is an apocalyptic scene ... The blast of light is the only speaking force ...

A frail, scarcely visible angel forces them [the damned escaping from Hell] to stop ... "In Hell suffering is bearable because it seems unavoidable ... Here we suffer for what we wish to become ... You are not strong enough for heaven ..."

His task, often obscure, lacking the sequential, rationalized, dynamic quality of the mathematician, is the quest for moral significance in self conquest, the search for identity through the recognition, the integration and ordering of his self contents.

He has come . . . on a quest for himself, to resolve his question — what is he.

One morning he ascended the mountain He turned to face the serpent of Avarice Aggression hovered in a cave behind Avarice.

The knight . . . sees the face of each monster . . . is his own . . . both seem mirror images and yet each differs in slight, horrible ways from each other

. . . it was the light first . . . something so strange at first he [the dragon] had stretched his neck, stretched it and swung it and known his neck . . . he had projected a foot and flapped it and known his foot.

We had predicted for the Poet an unstartled acceptance of and identification with his own impulse life. The stories, however, suggest a different and more complex personality structure and mode of ego-id integration for poets, and lead to reformulation of our original hypotheses.

Among the most striking and distinctive features of poets' stories are the themes of multiple selves within the self. This suggestion of loosely-bound introjects, of identifications that have not been fully synthesized, seems further represented in their free intermingling of realistic with unrealistic imagery, of socialized with antisocial elements that occasionally have a quality of matter-of-fact gruesomeness. Yet startle, anxiety and terror still accompany these representations.

One may speculate that for the poet, the introjection-projection process has been interrupted or attenuated. Some larger measure of threatening impulses is accepted as part of the self. Note above, for instance, that poets referred threat to human agents, often to the hero himself, when dragon or ghosts were not used in the stories, rather than projecting it upon nature (as did Mathematicians) or supernatural forces (as did Psychologists). If the projection of anxiety-provoking memories and percepts occurs less, it contributes less to establishing a well-defined ego-id boundary. A more complex organization is formed, with

a multiplicity of less firmly bounded selves.

In urgent passage through his diffuse identifications, the poet faces the archaic id in order to experience an epiphany, a revelation of his true identity. It is to be achieved through sheer emotional intensity — "The split second when fear or hatred or anxiety is at its peak is both the present and the future, an infinite and infinitely terrible state," or by a fusion of disparate selves — "The faces are the meaning of life as he has been unable to see it, and he begins to scream as the animals reach him, their mouths opening wide and wider."

The outcome of this confrontation may be a successful fusion or else the self may reject the significance of its encounter, or miss it altogether, as in Beckett's *Waiting for Godot*, or Eliot's *Journey of the Magi*. "Whatever he was looking for wasn't here. There was only ugliness in that dragon . . . once he had seen the dragon, he knew there was no hope." It is these latter stories that impress one with an apparent aimlessness, as their meaning eludes and tantalizes.

I could say that we went out for Dragon and found him, looking wistful, walled, and that we left him and came back again Then we faced our moment (just as the Dragon had faced his the night before and got off by looking silly, sympathetic, pathetic, or ill).

Yet, whatever the stress of these diffuse states may be for the individual, they seem to provide the rich variety of self-expressive modes necessary to the literary artist.

The characteristic concerns and structure of the modal mathematician, psychologist and poet seem to offer a bridge between patterns of ego-id integration, expressed in phantasy, and the actual professional work of the three groups: the active striving of the mathematician to extend the domain of the rational and lawful in the physical world; the psychologist's aim to resolve and control conflicting forces in the inter- and intrapersonal sphere;

and the poet's drive to produce a structured representation of subjective reality. We suggest that these stories and the work of the occupation, alike, are stamped with their authors' distinctive patterns of impulse integration. Further, an important source of continued gratification in work may be the opportunity, in the face of some inner or outer provocation to new mastery, to reconstitute the self and reality according to the individual's own style of impulse integration.

In this exploratory study, it must be emphasized that the typologies offered, of the "modal" psychologist, mathematician and poet, are aimed at describing styles of function, rather than fixed traits or structures. The flexibility of behavior, especially of talented and creative young adults, points to varied ways the individual may react to his own impulse life as well as the stimulation around him. This presentation has of necessity focused on the characteristics that differentiate the three groups. Exploration of their commonalities, and of multiple professional identifications, should yield valuable insights into the determinants of flexibility and creativity.

REFERENCES

- Brill, A. A. The psychopathology of selections of vocations. *Med. Rec.*, 1918, 93, 318-323.
- Erikson, E. H. Ego development and historical change. *Psychoanal. Stud. Child*, 1946, 2, 359-396.
- Erikson, E. H. The problem of ego identity. *Amer. psychoanal. Ass. J.*, 1956, 4, 56-121.
- Galinsky, M. D. Personality development and vocational choice. *J. counsel. Psychol.*, 1963, 9, 299-305.
- Korn, H. A. & Parker, E. B. A normative study of the S.V.I.B. using an objective method of pattern analysis. *Personnel Guid. J.*, 1962, 11, 222-228.
- Lantos, Barbara. Metapsychological considerations on the concept of work. *Int. J. Psychoanal.*, 1952, 33, 439-443.
- Murray, H. A. *Thematic apperception test manual*. Cambridge, Mass.: Harvard U., 1943.
- Nachmann, Barbara. Childhood experience and vocational choice in law, dentistry, and social work. *J. counsel Psychol.*, 1960, 7, 243-250.
- Oberndorf, C. P. Psychopathology of work. *Bull. Menn. Clin.*, 1951, 15, 77-84.
- Riesman, D. The themes of work and play in Freud's thought. *Psychiatry*, 1950, 13, 1-16.
- Segal, S. J. A psychoanalytic analysis of personality factors in vocational choice. *J. counsel. Psychol.*, 1961, 8, 202-210.
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BOOK REVIEW

Gilberstadt, Harold, and Duker, Jan. *A Handbook for Clinical and Actuarial MMPI Interpretation*. Philadelphia: W. B. Saunders Co., 1965. pp. x, 134. \$4.00.

This Handbook presents a clear demonstration of how psychological test results can be used to predict the behavior of psychiatric patients and of others (the diagnoses which psychiatrists make of these patients, for example). The authors provide a description of a procedure for making systematic use of the variability in test results, and a compilation of descriptive terms and phrases which accompany clearly defined test patterns. They also present a rationale for their approach and for the use of their results. To this reviewer the rationale seems to go astray in spots, but fortunately this, in itself, does not present any significant obstacle to the use of their approach or to the application of their specific findings.

The authors, Harold Gilberstadt and Jan Duker, are both University of Minnesota Ph.D.s and both have retained Minnesota ties, Dr. Gilberstadt by way of being Chief Clinical Psychologist at the Minneapolis V.A. Hospital with an appointment in Medical Psychology at the University of Minnesota Medical School, and Dr. Duker as Director of the Training Program in School Psychology at the University. What they report in this book are the results of their efforts to identify response patterns among the admission MMPIs of male inpatients on the psychiatric service of a Veterans Administration hospital, and to relate to each of these patterns any behavior noted in hospital records to go along consistently with it. The test variables they have chosen to work with are the standard scores (T-scores) of the three "validity" scales and ten "clinical" scales of the MMPI. The T-scores are graphed and connected by lines to form a profile, and the profile patterns are the focus of investigation.

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tion is on developmental changes and on the individuality of the child The book is illustrated with 32 plates, each containing six mosaic pictures. These designs are beautifully reproduced in color and are highly instructive can be most highly recommended as a signal contribution to the practice and theory of psychodiagnostic testing."

By LOUISE BATES AMES, PH.D., Director of Research and FRANCES L. ILG, M.D., Director, Gesell Institute of Child Development. 309 pp., 43 pp. with color illus., \$9.50.

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There are several ways of grouping profiles: by the scale which is highest in elevation (the high-point code) (Dahlstrom and Welsh, 1960); by a combination of the two highest scales (the two-point code) (Dahlstrom and Welsh, 1960); by selecting target profiles each of which has a number of other profiles clustered around it and no more than one-half a standard deviation away from it on any one scale (Vincent, 1964); by clustering profiles through the use of a generalized distance function, Σd^2 (in which d is the distance between two profiles in T-score on any one scale), and then deriving prototype profiles by determining the mean scale scores for each profile cluster (Sines, 1964). The method used by Gilberstadt and Duker was to group MMPI profiles which, on the basis of their clinical experience over a number of years, "had come to attention because of their apparent power as cardinal types in representing trait clusters" (p. 12). After examination of the charts of these patients, those which did not fit well with the common clinical picture for that group were discarded, and a set of profile rules were formulated which would include acceptable cases and exclude those which did not fit the clinical formulation. A fresh sample of MMPIs was then reviewed and cases which fit the rules for any profile type were checked to see if their hospital data fit the clinical picture for that group. Through a series of successive refinements of this sort, the rules for the nineteen profiles presented in this book were derived.

Judges then went through the case history folders of all patients in each MMPI grouping (the folders contained a psychiatric discharge summary and a report of social service interviews) and completed a check list on which they tallied descriptive terms. The number of patients in each MMPI profile group to which each descriptive term was attributed was compared with the number of patients in a random sample for the same hospital who had the term attributed to them. Any term which showed a statistically reliable difference (at the .05 level) between the item frequency for a particular profile type and the item frequency for the control sample, was included in the Handbook as descriptive of the behavior of that profile type.

For each of the nineteen MMPI profile types, the book includes a drawing of the mean profile, the rules for determining goodness of fit, the number of patients whose profiles were included, a diagnosis and alternative diagnoses, a list of complaints,

traits, and symptoms (as gathered from the check list), cardinal clinical features of this group of patients, and a discussion "which ties the empirically derived cookbook material to the most relevant writings from the psychological and psychiatric literature" (p. vii). The empirical findings complement those found in other empirical studies of behavioral correlates of MMPI types, and provide thereby validation both for the results of this book and for the MMPI in general.

The authors suggest some ways in which their "output data" could be used in a psychological report. They write that their list of statistically frequent traits "would entail a fairly safe kind of prediction" (p. 8), but that "if a profile is to be used to generate a diagnostic label, a capsule summary, or an extended clinical description, for maximum safety a psychologist should be interposed between the actuarial input and output processes to screen cases in order to eliminate misses" (p. 9). To the extent that the diagnostic label, capsule summaries, and clinical descriptions are *not* empirically determined and cross-validated, I would agree, but if the diagnoses, etc., are empirical findings, with known probabilities, then there is no reason to accord them second-class actuarial citizenship. If one of the purposes of the actuarial approach is to increase predictive efficiency, why adulterate it by throwing in the kind of possible error this approach was designed to *reduce*? This does not by any means negate the value of the individual and individualized clinical approach, but it does place it in somewhat different perspective with respect to its overall role. Individual, clinically derived descriptions and explanations of behavior are open to error, an error which varies with the skill of the clinician and with the type of person he is evaluating, but it is also a fact that extended and intensive direct observation of the behavior of people is our *best* means of evaluation and is, indeed, one of our ultimate validation criteria. The actuarial method takes advantage of the clinical experience and skill of a number of clinicians, and by abstracting and tallying their findings demonstrates where the commonalities lie.

A weak point in this book is that there is no way of telling from the body of the work the extent to which a phrase was found to occur among the patients in a particular profile type, and one must refer to a table in the appendix section in order to determine the confidence with which one

may use it. For example, 18 statements which appeared significantly more frequent among the 1-2-3-4 profile type patients than among the general abnormal (random) group are listed under that profile heading. They are printed in alphabetical order with no indication of what the 18 frequencies are. Consulting the table in the back reveals that one of the phrases, "mother domineering," appeared in 5 of the 36 patients in the 1-2-3-4 profile group (a 14% incidence as compared with 3% incidence in the control group), whereas the phrase "heavy drinking" was used to describe 28 of the 36 patients (or 78% compared with the control group's 32%). While the statistical significance is present in both cases, the possible error is considerably greater in the former. One would like a handbook to offer easier access to the data which provide information about the practical as well as statistical significance of the items.

I would argue with the authors about the populations to which they say their actuarial data may be applied. The authors state: "If an individual does obtain a profile of given characteristics . . . it is proposed that in the great majority of the cases, the cookbook interpretation should be valid and applicable within practical limits regardless of the population characteristics." I would have to question the baldness of this statement. The profiles and statements were derived from records of male veterans who were admitted to the Psychiatric Service of the Minneapolis Veterans Administration Hospital, who were examined by the hospital's Psychology Service, who were 20 to 60 years of age, whose primary diagnosis was not brain damage, who had an estimated IQ of at least 105 on the Shipley Institute of Living Scale, who had taken the MMPI within 21 days of admission to the hospital, and who met certain additional criteria with respect to the MMPI "validity" scales. It is true that there is evidence from both research and clinical experience that specific MMPI findings may apply to many different populations. It is also true that research and clinical experience have shown that some findings are rather specific to certain limited populations, or that at least the amount of concurrence of test with extra-test behavior can vary markedly. A handbook should make very clear this warning about the possible limitation of applicability.

There are implications in the approach of Gilberstadt and Duker for the validation and use of other tests and methods in clinical psychology. The main assumption under-

lying what they have reported here is that "responses to test items are signs of dispositions to behave in certain ways in nontest situations or, in other words, are signs that the individual possesses certain traits," and on this basis they go on to determine whether regularities in behavior accompany the test signs. This approach, reasonable and sensible as it is, seems to be used far too infrequently in psychological test development and validation. The more usual approach is to group people by extra-test variables (schizophrenics, ulcer patients, fast learners) and to see then if the groups show a corresponding test variability. This is certainly not the way in which we use tests in the clinical situation. We are not called upon to look at a patient's behavior and from that try to describe and explain and predict what his test responses will be; it is quite the other way around. And yet this cart-before-the-horse approach probably accounts for a significant part of the disappointing research findings in the validation of projective methods. This point was well made by Hammer (1959) several years ago when he pointed out that the significant question in considering the relationship between certain figure drawing characteristics and schizophrenia was not whether schizophrenics produced these characteristics, but rather whether persons who drew figures in this way were schizophrenic.

In sum this book is a timely and valuable addition and complement to previous MMPI publications. Gilberstadt and Duker clearly describe the steps involved in their approach. They have a fairly good separation of fact from speculation, their findings concord with and extend the findings of others, they have related their findings to the broader clinical picture of the patients and to the implications of the psychopathology which is noted or implied, and their results (with the exception above) are arranged for ready consultation and use. In addition to the utility of the book as an aid in psychological evaluation, the discussion sections could serve as a guide to psychology interns who are learning how to make a case presentation of an informative, well-integrated, and interesting type.

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University of Missouri School of Medicine
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REFERENCES

Dahlstrom, W. G., and Welsh, G. S. *An*

- MMPI Handbook*. Minneapolis: University of Minnesota Press, 1960.
- Hammer, E. F. Critique of Swenson's "Empirical evaluations of human figure drawings." *J. proj. Tech.*, 1959, 23, 30-32.
- Sines, J. O. *Symposium on Actuarial Methods*. Presented at Annual Meeting of Midwestern Psychological Association, St. Louis, 1964.
- Vincent, C. E. *Unmarried Mothers*. New York: The Free Press of Glencoe, 1964.

ANNOUNCEMENT

BOOKS FOR REVIEW

The following books are available for review. If you wish to review one of them please write to the Executive Editor, Walter G. Klopfer, Ph.D., 7111 S. W. 55th Ave., Portland, Oregon 97219.

Thomas, Caroline B., Ross, Donald C., & Freed, Ellen S. *An Index of Rorschach Responses*. Baltimore: John Hopkins, 1964, 717 pages. \$15.00.

Lindzey, Gardner, & Hall, Calvin S. *Theories of Personality: Primary Sources and Research*. New York: John Wiley, 1965, 543 pages. \$6.95.

Szekely, E., "Basic Analysis of Inner Psychological Functions," *The British Journal of Psychology*. London: Cambridge Univ. Press, 1965, 130 pp.

Loosli-Usteri, Marguerite. *Manuel Pratique du Test de Rorschach*. Paris: Hermann, 1965, 246 pages.

Smith, M. G. *Stratification in Grenada*. Berkeley & Los Angeles: Univ. of Calif. Press, 1965, 271 pages. \$7.00.

Beck, Samuel J. *Psychological Processes in the Schizophrenic Adaptation*. New York: Grune & Stratton, 1965, 417 pages. \$10.75.

Taylor, Calvin W. (Ed.) *Widening Horizons in Creativity*. New York: John Wiley & Sons, 1964, 457 pages.

Schaie, J. W., & Heiss, Robert. *Color and Personality*. New York: Grune & Stratton, 1965, 281 pages. \$11.00.

Phillips, Herbert P. *Thai Peasant Personality*. Berkeley: Univ. of Calif. Press, 1965, 208 pages. \$6.00.

Stekel, Wilhelm. *Peculiarities of Behavior*, vol. 2. New York: Grove Press, 1964, 337 pages. \$1.75.

Shapiro, David. *Neurotic Styles*. New York: Basic Books, 1965, 199 pages. \$5.50.

Cattell, Raymond B. *The Scientific Analysis of Personality*. Chicago: Aldine Publ. Co., 1966, 376 pages. \$7.95.

Carpenter, Edmund, & McLuhan, Marshall (Eds.) *Explorations in Communication: An Anthology*. Boston: Beacon Press, 1966, 208 pages. \$1.95.

Reeves, Joan W. *Thinking about Thinking*. New York: George Braziller, 1966, 333 pages. \$6.95.

Mondale, Lester. *Preachers in Purgatory*. Boston: Beacon Press, 1966, 243 pages. \$4.95.

Buss, Arnold H. *Psychopathology*. New York: John Wiley, 1966, 483 pages. \$7.95.

Ahsen, Akhter. *Eidetic Psychotherapy*. Lahore, Pakistan: Nai Matboat, 1965, 246 pages.

Singer, Jerome L. *Daydreaming: An Introduction to the Experimental Study of Inner Experience*. New York: Random House, 1966, 234 pages. \$2.25.

Holland, John L. *The Psychology of Vocational Choice*. Waltham, Mass.: Blaisdell Publ. Co., 1966, 132 pages. \$1.95.

Davis, James A. *Education for Positive Mental Health*. Chicago: Aldine Publ. Co., 1966, 192 pp. \$6.95.

Glasscote, R. M., Cumming, Elaine, Hammersley, D. W., Ozarin, Lucy D., & Smith, Lauren H. *The Psychiatric Emergency: A Study of Patterns of Service*. Washington, D. C.: The Joint Information Service, 1966, 111 pages. \$2.50.

Arnheim, Rudolf. *Toward a Psychology of Art*. Berkeley: Univ. of Calif. Press, 1966, 369 pages. \$10.00.

Kleinmuntz, Benjamin (Ed.) *Problem Solving: Research, Method, and Theory*. New York: John Wiley, 1966, 406 pages. \$6.95.

Sarason, Irwin G. *Personality: An Objective Approach*. New York: John Wiley, 1966, 670 pages.

Kausler, Donald H. *Readings in Verbal Learning: Contemporary Theory and Research*. New York: John Wiley, 1966, 578 pages. \$7.95.

Slater, Philip E. *Microcosm: Structural, Psychological and Religious Evolution in Groups*. New York: John Wiley, 1966, 276 pages. \$7.95.

Goldstein, A. P., Heller, Kenneth, & Sechrest, L. B. *Psychotherapy and the Psychology of Behavior Change*. New York: John Wiley, 1966, 472 pages. \$8.95.

Britt, Stuart H. *Consumer Behavior and the Behavioral Sciences: Theories and Applications*. New York: John Wiley, 1966, 592 pages. \$11.50.

Atkinson, John W., & Feather, Norman T. (Eds.) *A Theory of Achievement Motivation*. New York: John Wiley, 1966, 392 pages. \$11.50.

Conger, J. J., & Miller, W. C. *Personality, Social Class, and Delinquency*. New York: John Wiley, 1966, 249 pages. \$7.95.

Journal of Projective Techniques & Personality Assessment

Vol. 30

December, 1966

No. 6

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Editorial

This issue of the Journal will be the last one printed in Los Angeles. On behalf of the Society for Projective Techniques & Personality Assessment, Inc., and of the editorial staff of this Journal, I would like to express my gratitude to Mr. A. A. Schramm and his staff for their lengthy and superior service as printers of the Journal. They have taken a great interest in our work, and have made many valuable suggestions.

Beginning with the February 1967 issue, the Journal will be printed by the Graphic Arts Center, 2000 N. W. Wilson Street, Portland, Oregon. The editorial office will remain the same at 7111 S. W. 55th Avenue in Portland. There will be some turn-over in editorial staff to expedite proof-reading,

but the consulting editors will continue to operate as before. During the last several years the editorial staff has become national rather than local, and currently consists of an excellent group of people from wide varieties of settings and geographical areas.

I would like to express our very special appreciation to Mrs. Jeanne Reitzell who has served as Associate Executive Editor for many years and taken care of liaison with the printer and the business management of the Journal. It is with the greatest reluctance that I have accepted her resignation as the Journal moves to Portland. Her work has proven invaluable and will be greatly missed.

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Published November 1965, 1752 2-column pages, \$32.50

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Great Man Award

By action of the Board of Trustees of the Society for Projective Techniques & Personality Assessment, Inc. an award was established in 1965 for a "great man" who had, during his entire professional career, made such outstanding and significant contributions to the field of projective tech-

niques and personality assessment as to make his lifetime achievement an example of excellence to those who are to follow. The Awards Committee consists of the president, past president, and president-elect of the society. At the 1966 meeting the Society presented its "Great Man" award to



BRUNO KLOPFER

For his unique contributions to the field of projective techniques, the Society honors its founder. Bruno Klopfer: teacher par excellence, scholar,

innovator, founder of this Journal and of the Society whose birth, development, and maturity he made possible. It seems quite impossible to

contemplate the impact of projective techniques on American psychology, apart from our founder's contributions. For these contributions to our

Society, to the field of projective techniques, especially to our knowledge of the Rorschach, and to clinical psychology generally, we are grateful to Bruno Klopfer.

VITA

Bruno Klopfer received his Ph.D. from the University of Munich in 1922. For the next ten years he was active in child and educational psychology in Berlin. From 1933 to 1934 he studied with C. G. Jung in Zurich and became acquainted with the Rorschach test. He lived in New York for the next twelve years, teaching first at Teacher's College, Columbia University and then at the College of the City of New York, and practicing Jungian analytic psychology. It was during this period that his classic "Rorschach Technique" was published. It was also during this period that he instituted his summer workshops in projective techniques which have continued until recently.

In the mid-1940s he moved to California where he commuted between his Carmel home and UCLA. He also taught at Claremont, consulted with many state and federal agencies and

continued his analytic practice.

His research interests, illustrated by the partial bibliography that follows, have been many and varied. Most recently they have included psychological variables in human cancer, children with ulcerative colitis, the use of the Rorschach in predicting treatment outcome in child guidance, and the personality traits of homosexuals. He founded the *Journal of Projective Techniques & Personality Assessment* (then known as the *Rorschach Research Exchange*) in 1937 and continues as its Editor to this day. He also founded what is now known as the Society for Projective Techniques & Personality Assessment and served as its President. In 1965 he received an award from the Division of Clinical Psychology of the American Psychological Association for his Distinguished Contribution to the Science and Profession of Clinical Psychology.

PUBLICATIONS

Das Problem der seelischen Hemmungen (Dissertation) im Archiv für die gesamte Psychologie Bd. 1924, 47, 45-93.

Bibliographische Einführung in die Heilpädagogik, herausgegeben im Auftrag des Zentralinstitutes für Erziehung und Unterricht, Frankfurt, Main 1932, Verlag Kurt Stenger, 230 pp.

Is inclination to mental disease within a population group a racial factor? *The Psychiatric Quarterly*, 1944, 18, 240-272.

The Rorschach Technique, 1946 *Supplement*. World Book Company, 742 pp. (with Helen H. Davidson).

The Rorschach Technique, in *Milit. clin. Psychol.*, Depts. of the Army and Air Force, 1951, 39-53.

Rorschach Test, in *Thematic Test Analysis*, Grune & Stratton, New York, 1951, 203-210.

The Rorschach Technique, Spanish translation published by Editorial Paidós, Buenos Aires, Argentina, 1952, 349 (with D. W. Kelley).

Psychological variables in human cancer. Gengerelli & Kirkner, Eds. Univ. Calif. Press, 1954, 4 pp.

Developments in the Rorschach technique. World Book Co., January, 1954. February selection of Basic Book Serv. (with Mary D. Ainsworth, Walter G. Klopfer, Robert Holt).

Projective techniques, ego psychology and analytic psychology, in *Contribution to analytic psychology*, Vol. 1, Zurich: Rascher 1955.

Developments in the Rorschach technique, Vol. 2, World Book Co., 1956. November selection of Basic Book Serv.

Anniversary Issue of the *J. proj. Tech.* at the occasion of the eightieth birthday of C. G. Jung, Summer 1955. (Editing of the issue and contribution of an editorial introduction.)

Psychological variables in human cancer, *J. proj. Tech.*, 1957, 21, 331-340.

Rating scales for ego functioning applicable

to diagnostic testing. *J. proj. Tech.*, 22, 1958. (With Evelyn Crumpton & Harry M. Grayson).

Manual for rating scales for ego functioning applicable to diagnostic testing. Distributed by UCLA Students' Store, February, 1958. (With Evelyn Crumpton & Harry M. Grayson).

Suicide from the Jungian point of view, in *Cry for help*, Norman Farberow & Edwin Shneidman, (Eds.) New York: McGraw-Hill, 1961.

The case of Eva (with James W. Parker). Burton, Arthur (Ed.) *Case studies in coun-*

seling and psychotherapy, Prentiss Hall: 1959.

Some dimensions of psychotherapy (with Marvin Spiegelman). in *Spectrum Psychologiae*, Zurich und Stuttgart: Rascher Verlag, 1965.

EDITORIAL CONSULTANT

German and Swiss *Zeitschrift fur Diagnostische Psychologie*.

British *J. of analyt. Psychol.*

Japanese *Rorschachiana Japonica*.

Abt, L. & Riess, B. F., *Progress in clinical psychology*, Vol. 7, New York, Grune & Stratton: 1966.

On The Relation of Color and Personality¹

K. WARNER SCHAIK
West Virginia University

Summary: The history of psychological studies of the relation between color and personality was reviewed. Models were related which conceptualize response to color as a means of studying emotional behavior, personality differentiation and the indirect influence of observable behavior traits. The relation of response to color and emotional behavior was discussed in terms of the color attributes of excitation potential, arousal value and affective content. Attention was drawn to the possibility of identifying modes of personality differentiation along the dimensions of rigidity-flexibility and stability-instability from extent of color use and from the study of color-form dominance. Finally, color preferences were applied to the actuarial prediction of personality patterns in terms of observable traits.

The laws of color vision and related problems of the subjective experience of color phenomena have preoccupied many psychologists for a long time. More specifically, there has been a pervading interest in attempts to utilize response to colored stimuli as a way of gaining information on a variety of personality variables. Several personality test constructors have included response to color as the dimension or basis of their personality assessment techniques. As examples we might mention the use of colored blots in the Rorschach (Rorschach, 1942), the use of finger painting (Napoli, 1951), and the utilization of the interaction of color and form on the Color Pyramid Test (Schaie and Heiss, 1964).

In order to provide a rationale for the use of response to color as a personality description technique, it is first necessary to show that there are indeed stable relations between preferences for choices of specific colors and independently specifiable personality variables. A further condition for the application of such techniques to diagnostic use requires that individual differences in response can be found above and beyond stable rela-

tionships defined by group or class attributes and characteristics.² Both conditions for the application of response to color have been shown to hold, and our concern must now turn to the possible meaning of color choice.

There are several ways in which we can generate hypotheses on the meaning of color response. We might consider whatever anecdotal or folkloristic information may be available. A second source of hypotheses might be found in the speculative literature provided by writers concerned with the esthetic and philosophical connotations of color association. More empirically oriented sources of hypotheses may be derived from the naturalistic observations of the ethologists (Tinbergen, 1942; 1948) as well as from related laboratory experiments on color preference in birds available from studies on imprinting (Hess, 1956). More conventional sources of hypotheses are available by examining the findings obtained when color preference tasks are administered to groups with different known types of psychopathology. Finally, one may identify the meaning of color preference in normal subjects by obtaining behavior ratings and self-descriptions which are then correlated with response to color. Last, but not least, there is a possibility of altogether avoiding concern with the connotations of color meaning if one is will-

¹ Invited Psi Chi lecture given at the meeting of the South Eastern Psychological Association, Atlanta, Georgia, April 2, 1965.

² Formal tests of these basic assumptions have been performed via the study of color-mood associations. See Schaie (1961a, 1961b).

ing to approach personality description from a purely actuarial point of view. We shall begin our discussion by describing various hypotheses available for understanding the relations between color and personality and then will proceed to generate more specific models for three broad aspects of personality description. Let us first, however, consider the various properties of color as a stimulus in personality research.

COLOR AS A STIMULUS

A review of the literature on color as a stimulus suggests that various writers have concerned themselves with three different dimensions. Colors appear to have a *biological* cue function; i.e., they have cue values implicit in the physical characteristics of the stimulus as they impinge upon the sensory apparatus of the subject. A second dimension involves an *esthetic* appeal which may be determined in part by biological substrata, but which more likely is related to the subject's experience. Thirdly, colored stimuli appear to have *symbolic* value which will depend to some extent upon the subject's experience, but also upon the symbolic import of the stimulus within the context within which the colored stimulus is presented as well as the subject's more general cultural expectations.

Biological cue functions. It has been known for a long time that colors can serve as cues for the elicitation and direction of food seeking behavior in many organisms. Colors also provide important response-eliciting cues in mating and reproductive behavior. Thus, it is known that the male stickle-back will respond aggressively when noting the red-tinted belly and bluish-green back of an interloper in his territory. Thrushes use the orange-colored throat of their young as identifying cues, and bluejays recognize their fellow jays by their bright blue wing color (Tinbergen, 1942). Even organisms which do not have visual sense organs but which show light

sensitivity have been known to react to the color dimensions of light and dark.

Additional evidence for the biologically determined function of color comes as a byproduct of imprinting studies which show distinct gradients of color preference in newly hatched chicks, where the relevance of environmental experience can obviously be excluded (Hess & Gogel, 1954; Hess, 1956). Hess (1957) also showed that drugs such as meprobamate tended to modify and occasionally nullify imprinting operations. Schaie, Hill and McArthur (1965) have also demonstrated that color preference in visually naive newly hatched chicks can be modified by a stimulant (Meratran) or a depressant (Frenquel).

As long ago as 1810, Goethe suggested in his *Farbenlehre* (theory of color) that the biological cue function of color may be of importance in human color response. He suggests that red, yellow and orange may be described as having exciting and enlivening properties. Blue and purple, in contrast, are said to induce anxious, tender and yearning responses. Goethe's color theory is no longer claiming much attention, but it may be noted that empirical evidence is available to support his hypotheses concerned with the arousal function of various colors at least from the point of view of subjective experience as quantified by means of psychophysical judgments (Wexner, 1954; Schaie, 1961a).

Guilford (1934) maintains the view that color preference in man is innately determined and is little influenced by the environment or by learning experiences. He concludes that the affective value of color is positively related to brightness and saturation, all relations being of curvilinear form (Guilford and Smith, 1959). Although Guilford's evidence is impressive one should not infer therefrom that environmental variables are not involved in color response when instructions involve elements other than

simple preference. Indeed, there are dissenting voices, and we find Osgood (1953) boldly stating that color preference is "clearly shown to be the result of learning, slow and arduous learning at that". Guilford's position is supported also by Granger's studies (1955). The latter argues that color appreciation is dependent on an esthetic factor of a biological nature. He cites as evidence findings that there is a general order of preference for each physical attribute of color at all levels of the color solid and that the order of preference for any one attribute of color remains invariant under change in level of the other two attributes.

Goldstein (1939; 1942) provides a more direct approach to the biological function of color in men. Working with patients with organic pathology, he found that differently colored backgrounds produced different differential behavioral effects. Red backgrounds were experienced as being disagreeable, upsetting and even nauseating. Such backgrounds tended to increase symptoms such as loss of equilibrium and errors in cutaneous location. Green backgrounds on the other hand tended to reduce such symptoms. Goldstein also noted that movements were executed with more precision in green light than in red. He theorizes that color affects the whole organism and that the organism is oriented toward or away from his environment.

There is as yet no adequate knowledge of the biological variables involved in mediating color response, but it does seem likely that such variables may influence a perceptual process involved in producing reports of the subjective experience of "warm" for colors at the red end of the spectrum and of "cold" for colors at the blue end. Even without a good theoretical rationale, industrial psychologists, architects and designers have tried to maximize with some success the stimulating or inhibiting functions of various color combinations

for such purposes as the packaging of consumer goods or the manipulation of the "color environment" in the design of offices, apartment buildings, hospitals and factories (Birren, 1950).

Esthetic properties of colored stimuli. The esthetic effect of a colored stimulus differs markedly from its biologic cue function. The cue function serves to energize the primary drive, that is, the stimulus will elicit behaviors such as food-seeking, mating, defensive postures, etc. The responses elicited by the esthetic aspects of color, however, tend to be much more differentiated and variable. A painting may convey a mood of excitement or quiescence, elation or depression, happiness or distress, as well as many other moods. In addition to the mood state aroused, feelings may be elicited also which relate to perceptual, tactual or kinesthetic sensations involving complex formal attributes of the stimulus. Thus a painting may convey a feeling of lightness or happiness, depth or flatness, movement, static structure, emptiness or fullness of meaning. In fact, we may totally ignore the formal content of the painting and describe it in terms such as dull or clever, complimentary or satirical, outspoken or mysterious. It is obvious then that the complex characteristics of a work of art are not entirely determined by the colors used to compose it. But color seems to represent the emotions which are communicated even though the mediation may be confounded by other formal characteristics. It is probably the combination of color within its context which is the basis for the manyfold meanings of colors and which adds the symbolic to the affect-arousing properties of colors.

The esthetic function of a color may also be involved in arousing associations which are ordinarily mediated by other sense modalities. This function of color is probably due to the confounding of learned associations and biological properties. A well-known example of synesthetic experi-

ences mediated by color is the association of colors and music (Karwoski & Odbert, 1938). Associations have also been reported between colors and olfaction as well as between colors and tactual perception. It may be noted in this context that it is rare if any single color in isolation serves to mediate esthetic properties. Even where a single color predominates in arousing affective states, it generally does so against a background of other colors. A single hue is no more than a level on a colored continuum which attains identity by those of its aspects which distinguish it from its background. Some kinds of color combination will therefore appear more functional than others, and as a consequence will relate to dynamic personality phenomena where other combinations may be meaningless (Allen & Guilford, 1936; Woods, 1956).

Color combinations which are important as mediators of esthetic impressions are those involving color contrast, use of complimentary colors and color mixture. Such combinations will appeal to the viewer as being balanced, unbalanced or full of stress and tension. The manifold appeal of a work of art depends, therefore, not only on the affective, emotional and symbolic significance of the specific colors used, but also upon the integration and interaction of the color combinations. The significance of a single color in the combination must therefore often be assessed by its relative position since it may not possess an operationally clear absolute value. Any technique seeking to quantify response to color must deal with the confounding effect of color combinations since the complex esthetic effects of color may be of considerably greater importance than the symbolic color meanings.

Symbolic meaning of color. Every color is known to have symbolic meaning, but there are many symbol symptoms which pose difficulties by providing mutually contradictive explanations. Color symbolisms may be of a

religious or a political nature or they may serve as a status symbol. The purest expression of the symbolic value of color appears in those systems which assign a meaning which is readily apparent from properties of the class of objects or behavior symbolized. The classical color symbolism, therefore, assign red as the color of light and of blood, yellow as the color of anger and fire, black as the color of earth and depression, and white as the color of water and frost.

Similar to the interpretation of dream symbols color symbolisms are rarely constant and unambiguous. Their specific content may depend upon transient historical or cultural events even though a symbol will rarely contrast with those aspects of the affective arousal of color which constitute biological givens. It becomes clear, however, that hypotheses derived from symbolic color systems invariably involve multiple dimensions of meanings which moreover often have bipolar characteristics (Kouwer, 1949). Because of these difficulties it is generally not feasible to utilize folklore-derived hypotheses directly as a source of diagnostic statements about the meaning of response to specific colors. Instead, these hypotheses have served as an impetus for and have guided the selection of variables in a large number of laboratory studies concerned with the meaning of colors.

METHODS USED FOR THE MEASUREMENT OF RESPONSE TO COLOR

The techniques used for the measurement of color response fall into two general categories. A large number of studies associated with the measurement of color preference and the relation of meanings attributed to colors have utilized psychophysical types of experimentations and included a variety of scaling methods. Reviews of such studies may be found in Pressey (1921), Norman and Scott (1952), and Schaie and Heiss (1964). Most of these studies involve presenting to the subject some combination

of colors and/or descriptions of mood states or behavior descriptions and then performing some kind of scaling operations upon the subject's responses.

A second kind of approach represents that implicit in diagnostic personality description techniques which employ the use of color. The most well-known of such techniques is, of course, the Rorschach (Rorschach, 1942). One of the difficulties of the Rorschach's use of color, however, lies in the treatment of chromatic color as unitary stimulus material contrasted to achromatic stimuli. While there are doubtlessly some differences in responses to such a dimension, this particular classification loses sight of other basic color dimensions such as hue, saturation and brightness which are clearly relevant. The conflicting results of studies relating color response on the Rorschach to personality variables (Cerbuss & Nichols, 1963) seem clearly a function of confusion introduced by the confounding of different colors.

Some tests such as the Stroop and the Goldstein-Weigel-Scheerer tests use color for contrast only but do not elicit response to color as a personality description device. Two techniques, however, seem currently available which pay attention to specific colors. One, the Lüscher test, does so by the use of forced-choice color preferences. The other utilizes projective principles for inferences drawn from the interaction of color and form (Pfister, 1950). The latter technique known as the Color Pyramid Test (Schaie & Heiss, 1964) has received a good deal of psychometric attention and will be briefly described.

In the Color Pyramid Test the client is presented with a 15-field pyramid as shown in Figure 1, and a supply of colored chips in 24 different hues. The client is asked to make the pyramid as pretty as possible by filling it with colored chips and after two additional trials is then asked to make

three pyramids as ugly as possible. Color choice frequencies are recorded and the use of symmetry in placing the colored chips is analyzed. Considerable research has been conducted with this test and normative data are available which support some of the propositions to be advanced in our subsequent considerations.

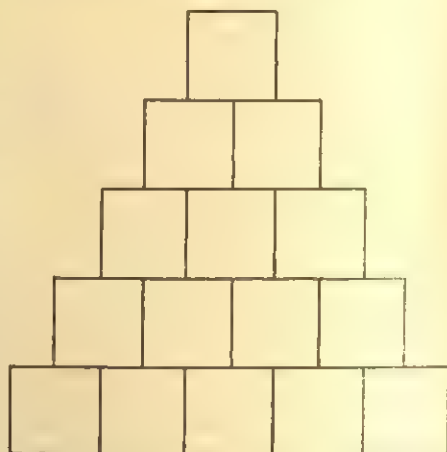


FIGURE 1. Design for the Color Pyramid Test.

RESPONSE TO COLOR AND EMOTIONAL BEHAVIOR

It has been noted that past thinking has related response to color primarily to influences regarding emotional behavior. In this context it is said that color stimuli will evoke physiological and psychological excitation as well as having mediating affective value. The three components involved may be identified by the concepts of *excitation potential*, *arousal value* and *affective content*. These dimensions may be directly related to emotional behavior described in terms of the concepts of mood state, affect and emotion. Figure 2 will identify the relationship between dimensions of color and emotional behavior. A *mood state* represents the direction of emotionality predisposing the individual's expression of his needs and feeling. Statements about such a mood state may be made on the basis of an in-

dividual's color preference in terms of the affective content of the color. This will generally relate to the dark-light or brightness continuum which appears to be isomorphic with the depression-elation continuum in an individual's mood state. A second dimension in emotional behavior may be termed *affect* and is used to describe the brief, rapidly dissipated feeling which responds to internal or external stimulation and which may be associated with intensive arousal effects. The corresponding color dimension is that of arousal value. It has been noted here that the colors at the red end of the spectrum have high arousal value while those at the blue end have low value. A third concept is that of emotion which describes a persisting state which may be associated with specific stimulus objects and contents. The corresponding color dimension is that of excitation potential; i.e., the excitation potential of a colored stimulus may be strong or weak as is the corresponding emotion. The degree of excitation potential may be associated with the saturation of the colors responded to.

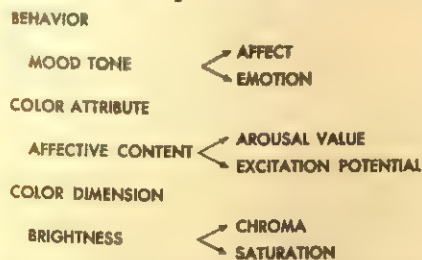


FIGURE 2. The Relationship between Dimensions of Color and Emotional Behavior.

We may now classify the attributes of various colors (and the individual's response thereto) in terms of the components of emotional structure which may be inferred therefrom. Thus, the color dimension of bright-dark becomes a representation of mood state with white representing lightness, release, unboundedness but also emptiness and lack of identification. Gray is at the intermediate point of this di-

mension representing indifference, neutrality and concealment, while black becomes a signifier of depression, constraint and inhibition. Within the polarity of mood states represented by the achromatic hues, the arousal value and associated response forms may be inferred from the particular chromatic hue which arrests the subject's attention. In this context red, orange and yellow appear to be associated with strong and immediate excitation, impulse expression and intense arousal. The arousal value of the remaining chromatic colors green, blue, purple and brown on the other hand is low but of a persistent quality. Within the group of warm colors, red as the most highly saturated hue represents the highest excitation potential and yellow the lowest. Likewise green and purple are more saturated and exceed in excitation potential that of blue and brown.

The above model suggests that the chromatic colors represent in spectral order from red to purple, the full range of emotional expression from excited, uncontrolled, immediate and externalized impulse discharge (red), through calm stability (green) to internalized, yet disturbing and driving anxiety (purple). The light-dark dimension, of course, provides some variation in attributable meaning for the hues of each color. For the lighter hues the associated mood state of lightness and elation must be considered, just as for the darker hues it would be necessary to consider their relevance to heaviness and depression.

A large amount of data is available in the literature which will support the notions presented above. Table I presents a summary of a dozen of studies attempting to identify the affective meanings found to be ascribed to various colors and it can be seen that our conceptual scheme is well supported by these findings. Moreover, there are a number of clinical studies using the Color Pyramid Test which provide additional evidence. Thus, above average red scores have been

found in men who have committed aggressive sexual offenses (Siedow, 1958), while high yellow scores have been found in high performers and goal directed subjects. Thus, preference for red seems to be associated with uncontrolled acting-out behavior while preference for yellow goes along with out-going but well-controlled modes of expression. Evidence for the cool colors as being involved in rational modes of affect control is found in studies showing lower blue choices by mentally defective boys (Schaie, 1962) and by normal adults during an artificially induced hallucinatory state (Lienert, 1960). The association of purple with strong internalization of affect, anxiety and tension seems supported by findings of elevated purple in a number of psychopathological groups (Frohoff, 1953; O'Reilly et al, 1957). Other numerous associations between color preferences and emotional behavior have been given elsewhere (Schaie & Heiss, 1964).

It seems evident then that the use of response to color for diagnostic purposes is best supported in describing the emotional aspects of personality. It should be recognized, however, that other than emotional meanings may be associated to different colors. Color symbolism, folklore, and artistic productions indeed suggest that other meanings are often associated. Such meanings, however, are secondary and are derived from primary and purely emotional associations.

RESPONSE TO COLOR AND PERSONALITY DIFFERENTIATION

When a client is exposed to a variety of colored materials, it is possible to do more than to attend to the absolute frequencies with which certain colors are responded to. We can note, for example, the client's tendency to attend to or avoid certain colors, to choose or avoid such colors consistently, and to shift his attention from certain colors to others. Depending upon the behavior seen, we may infer that a wide breadth of color

arousal mediated by the colors but he choice reflects an intensive interaction between the multiplicity of external stimuli and varied forms of emotional response. In children such a response is unremarkable but when found in adolescents or adults, then infantile impulsivity and lack of personality differentiation might be suspected. A client who avoids use of one or two colors out of a wide array provides evidence of increased differentiation and restriction of his stimulus receptivity. Such a response no longer denotes the presence of uncritical or undifferentiated attention to external stimuli. (On the other hand individuals who are able to make use of only a few colors out of a wide array are likely to show either shallow personality development or identify individuals where emotional disturbance has led to the establishment of withdrawal and inhibition as primary defense mechanisms.) We are thus able to infer diffused, differentiated and restricted psychological experience from the individual's response to colored material. Similarly, it may be possible to infer from the individual's changes in color preferences over a series of trials whether his color choice is indicative of emotional lability, flexibility or pathologically rigid response tendencies. Figure 3 summarizes an appropriate conceptual scheme.

Information about an individual's personality differentiation may also be gleaned from his use of structure in a color arrangement task. On the Color Pyramid Test it is possible to arrange colored chips either by attending exclusively to the colored aspects of the stimuli or by using the structural aspects of the pyramidal surface. It has been noted that individuals who arrange colors randomly and without attending to structure are likely to have rather undifferentiated personality patterns. A transitional form is represented by subjects who use colors to differentiate the rows of the pyramidal surface. This kind of person is able to escape the strong pull of the

TABLE I—Affective Meaning Found to Be Ascribed to Various Colors

| Study | Red | Orange | Yellow | Green | Blue | Purple | Black | White | Brown |
|------------------|---|--------------------------------------|--------------------------------------|----------------------------|---|---------------------------------------|-----------------------------------|-------------------|-------------------|
| Hevner (1935) | Happiness, restlessness, agitation | | | | dignity, sadness, tenderness | | | | |
| Lewinski (1938) | stimulating, hot | stimulating, hot, un- pleasant | stimulating, most un- pleasant | | most pleas- ant, cool | depressing | | | |
| Karwoski (1938) | exciting | exciting | exciting | leisurely | leisurely | vigorous | sad | solemn | sad |
| Alschuler (1943) | affection and love, or aggression and hate | tempered emotions | | controlled emotionality | drives toward control | | intense anxieties, fears | | |
| Schachtel (1943) | striking, exciting, explosive | warmth, delight | serene, cheerfulness, envy | | | | | | |
| Bricks (1944) | hostility, aggression | | hostility, aggression | | | | depression | | |
| Kouwer (1949) | active, intense | merry | | youthful | social | disagree- able, sad | sad, vague, disagree- able | pure, spirited | disagree- able |
| Napoli (1951) | | | | controlled emotionality | security, drive | deep but optimistic, depression | evasion, fear, depression | | |
| Wexner (1954) | exciting, stimulating | disturbed, distressed, upset | cheerful, joyful | | secure, comfort- able, tender, soothing | dignified, stately | powerful, strong, masterful | | |

TABLE I—(continued)

| Study | Red | Orange | Yellow | Green | Blue | Purple | Black | White | Brown |
|--------------------|--|-------------------------|---|---|---|--|---|---------------------|-----------------------------|
| Murray (1957) | exciting, stimulating defiant, contrary, hostile, powerful, strong, masterful | | cheerful, jovial, joyful | secure, comfortable, calm, peaceful, serene | tender, soothing | despondent, dejected, melancholy, unhappy | | | |
| Hofstaetter (1958) | strong, active, full | happy | | young, ill, fresh | strong, full, great, deep | full | deep, strong, great, old, sad | empty | full |
| Schaie (1961) | protective, exciting, powerful, strong, masterful, defending, stimulating | exciting stimulating | exciting stimulating, cheerful, jovial, joyful, pleasant | | pleasant, secure, comfortable, tender, soothing | dignified, stately | distressed, disturbed, upset, defiant contrary, hostile, dignified, stately, powerful, strong, masterful, despondent, dejected, melancholy, unhappy | tender, soothing | secure, comfort- able |

Constancy of Color Choice

| Breadth of Color Choice | Constancy of Color Choice | | |
|-------------------------|---|---|---|
| | LABILE | FLEXIBLE | CONSTANT |
| | RESTRICTED | CAUTIOUS AND INHIBITED BEHAVIOR | SEVERELY INHIBITED AND CONSTRICTED PERSONALITY Found in neurotics and transient personality disturbances |
| | MODERATE | AVERAGE EMOTIONAL ADJUSTMENT Typical normal pattern of personality differentiation | PERSONALITY DIFFERENTIATION ACHIEVED BY REPRESSION OR SUBLIMATION OF EMOTIONAL NEEDS Normal behavior Pattern |
| WIDE | EMOTIONALLY LABILE UNRELIABLE UNSTABLE Found in creative artists and character disorders | OPTIMAL PERSONALITY DIFFERENTIATION WITHOUT CONSTRICTION Mature behavior | IMMATURE AND PERSEVERATIVE BEHAVIOR Normal in children but indication of emotional retardation in adults. |

FIGURE 3. The relation between personality differentiation and the Breadth and Constancy of Color Choice.

must do so with very limited and restricted response. Finally the individual who is able to arrange some kind of symmetric configuration out of the colors with very limited attention to the colors as such represents the image of a well-differentiated individual. Figure 4 illustrates response patterns exhibited by individuals at different levels of personality differentiation.

COLOR PREFERENCES AND OBSERVABLE BEHAVIOR TRAITS

Thus far we have considered the use of colored stimulus material in terms of its mediating properties as applying to the influence of emotional behavior and matters such as personality differentiation. We may now shift our attention to the use of colored stimuli as a source of test material in terms of the kind of notions as to the unimportance of item content which have been proposed by Berg (1959). Since it has been shown that substantial individual differences occur in response to color above and beyond the stable associations produced by groups, it becomes feasible to use scores derived from performance on color tests as predictor variables in the actuarial description of observable behavior

traits. As an example of such use, we have obtained regression equations linking scores on the Color Pyramid Test with behavior ratings on the 42 traits contained in Cattell's "normal trait sphere" made by classroom teachers for their pupils. Significant correlations can be found for each scoring variable on the Color Pyramid Test with one or more of the 42 behavior traits. Figure 5 gives an example of such a predictive formula for boys and girls and illustrates the existence of distinct relationships for the two sexes.⁸ We have applied these regression equations to predict the observable behavior of children in a school for mental defectives with validities in the form of tetrachoric correlations ranging from .18 to .91 for the 42 traits with a mean validity coefficient of .56 (Schae & Heiss, 1964). Other studies are currently in progress to validate our prediction equations with normal school children.

⁸ Values entered in prediction equations are frequencies of color choice and other scores on the pretty and ugly pyramids of the CPT. The criterion score is expressed in T score form with a high score in the socially desirable direction.

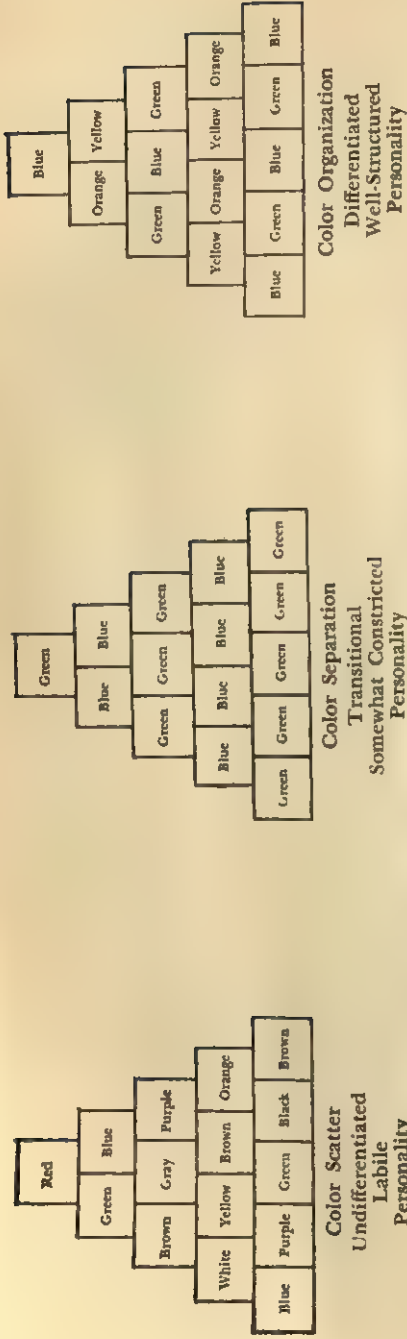


FIGURE 4. The Relationship between Personality and Color-form Interaction.

Equation to predict standing on behavior trait:

TALKATIVE-SILENT

Criterion group: 6-9 year-old boys

$$7 \text{ p Red} - 11 \text{ p Green} + 12 \text{ p Purple} - 9 \text{ p Brown} + 2 \text{ u Red} - 3 \text{ u Green} + 3 \text{ u Blue} + 7 \text{ u Grey} - 5 \text{ u CS} - 28 \text{ u MIS} + 484 \quad (R = .71)$$

Criterion Group: 6-9 year-old girls

$$8 \text{ p Orange} + 4 \text{ p Yellow} - 5 \text{ p Purple} + 10 \text{ p Brown} - 12 \text{ p Grey} - 17 \text{ p Black} + 11 \text{ u Orange} + 5 \text{ u Green} + 2 \text{ u Brown} + 3 \text{ u Grey} - 3 \text{ u Black} + 12 \text{ p MIS} - 6 \text{ u MIS} + 21 \text{ u MAS} + 6 \text{ u AS} + 359 \quad (R = .61)$$

FIGURE 5. Examples of Prediction Equations Linking Response to Color and Observable Behavior Traits.

SOME IMPLICATIONS FOR CLINICAL AND RESEARCH APPLICATION

It has been suggested in our preceding discussion that there are stable relationships between responses to colored stimuli and a number of personality dimensions of interest to the researcher and clinician. Techniques involving the use of colored stimulus material not only have the merit of being capable of rather precise quantification, but they also provide truly objective measurement techniques in that very few subjects are able to falsify their self-report when engaged in a color arrangement task. As was noted, the kind of symbolic color associations which might be available to the subject, are too ambiguous to aid him in determining a socially desirable, "healthy", or "disturbed" response pattern. Most subjects respond to color arrangement or color preference tasks quite readily and they are thus suitable for work with reluctant and hostile clients. It should also be noted that any verbal instructions required for a color response task can be conveyed by pantomime if required, and that we have material here which is most suitable for cross-cultural explorations. As we have stated previously, the response to non-object related colored stimulus material is not likely to be in terms of dimensions involving cultural variation. Research findings, moreover, sug-

gest non-random responses to colored stimulus material by children as young as 4 years of age. It may therefore be suggested that such material should be immensely useful also for developmental studies both of a cross-sectional and longitudinal nature.

REFERENCES

- Allen, E. C. & Guilford, J. P. Factors determining the affective value of colors and combination. *Amer. J. Psychol.*, 1936, 48, 643-648.
- Berg, I. A. The unimportance of test item content. In: Bass, B. M. & Berg, I. A. (Eds.) *Objective approaches to personality assessment*. Princeton: Van Nostrand, 1959.
- Birren, F. *Color psychology and color therapy*. New York: McGraw-Hill, 1950.
- Bricks, M. Mental hygiene value of children's art work. *Amer. J. Orthopsychiat.*, 1944, 14, 136-146.
- Cerbus, G. & Nichols, R. C. Personality variables and response to color. *Psychol. Bull.*, 1963, 60, 566-575.
- Frohoff, W. Untersuchungen mit dem Farbpyramidentest bei Schizophrenen. (Studies of the Color Pyramid Test in schizophrenics.) *Z. exp. angew. Psychol.*, 1953, 1, 145-181.
- Goethe, J. W. Von. *Naturwissenschaftliche Schriften, Volume 1. Zur Farbenlehre; Didaktischer Teil*. (Essays on Natural Science, Volume 1, On the theory of color; Didactic part.) Weimar: Bohlau, 1890.
- Goldstein, K. *The organism*. New York: American Book Company, 1939.
- Goldstein, K. Some experimental observations concerning the influence of colors on the function of the organism. *Occup. Ther.*, 1942, 21, 147-151.
- Granger, G. W. An experimental study of color preferences. *J. gener. Psychol.*, 1955, 52, 3-20.
- Guilford, J. P. The affective value of color as a function of hue, tint, and chroma. *J. exp. Psychol.*, 1934, 17, 342-370.
- Guilford, J. P. & Smith, Patricia C. A system of color preferences. *Amer. J. Psychol.*, 1959, 72, 487-502.
- Hess, E. H. Natural preferences of chicks and ducklings for objects of different colors. *Psych. Rep.*, 1956, 2, 477-483.
- Hess, E. H. Effects of meprobamate on imprinting in water fowl. *Ann. N.Y. Acad. Sci.*, 1957, 65, 258-268.
- Hess, E. H. & Gogel, W. C. Natural preferences of the chick for objects of different colors. *J. Psychol.*, 1954, 38, 483-493.
- Heyner, K. Experimental studies of the affective value of colors and lines. *J. appl. Psychol.*, 1935, 19, 385-398.
- Hofstaetter, P. R. & Lubbert, H. Die Eindrucksqualitaeten von Farben. (Factors in the subjective impression of colors.) *Z. Diagn. Psychol. Pfschschg.*, 1958, 6, 211-227.
- Karwoski, T. F. & Odber, H. S. Color music. *Psychol. Monogr.*, 1938, 50, Whole No. 2.
- Kouwer, B. J. *Colors and their character*. The Hague: Martinus Nijhoff, 1949.
- Lewinski, R. H. An investigation of individual responses to chromatic illumination. *J. psychol.*, 1938, 6, 155-160.
- Lienert, G. H. Die Farbwahl im Farbpyramidentest unter Lysergsaurediatylamid (LSD). (Color choice in the color pyramid test under the influence of lysergic acid (LSD). *Z. exp. angew. Psychol.*, 1960, 8, 110-121.
- Murray, D. C. & Deabler, H. L. Colors and mood tones. *J. appl. Psychol.*, 1957, 41, 279-283.
- Napoli, P. J. Fingerpainting. In: Anderson, H. H. & Anderson, G. L. *An introduction to projective techniques*. New York: Prentice-Hall, 1951.
- Norman, R. D. & Scott, W. A. Color and Affect: A review and semantic evaluation. *J. gen. Psychol.*, 1952, 46, 185-223.
- O'Reilly, P. O., Holtzinger, R., & Blewett, D. The Pfister Color Pyramid Test. *J. nerv. ment. Dis.*, 1957, 125, 385-387.
- Osgood, C. E. *Method and theory in experimental psychology*. New York: Oxford University Press, 1953.
- Pfister, M. Der Farbpyramidentest. (The Color Pyramid Test) *Psychol. Rdsch.*, 1950, 1, 192-194.
- Pressey, S. L. The influence of color upon mental and motor efficiency. *Amer. J. Psychol.*, 1921, 32, 326-356.
- Rorschach, H. *Psychodiagnostics: A diagnostic test based on perception*. New York: Grune & Stratton, 1942.
- Schachtel, E. G. On color and affect. *Psychiat.*, 1943, 6, 393-409.
- Schae, K. W. Scaling the association between colors and mood tones. *Amer. J. Psychol.*, 1961, 74, 266-273 (a).
- Schae, K. W. A Q-sort study of color-mood association. *J. proj. Tech.*, 1961, 25, 341-346.
- Schae, K. W. The performance of mentally defective children on the Color Pyramid Test. *J. proj. Tech.*, 1962, 26, 447-454.
- Schae, K. W. The color pyramid test: A non-verbal technique for personality assessment. *Psychol. Bull.*, 1963, 60, 530-547.
- Schae, K. W. & Heiss, R. *Color and Personality*. Berne & New York: Huber and Grune & Stratton, 1964.
- Schae, K. W., Hill, Carmen R., & McArthur, Jane. Modifying the color preference of newly hatched chicks. Unpubl. Mss. West Virginia University, 1965.
- Siedow, H. Untersuchungen mit dem Farb-

- pyramidentest an Psychopathischen Personenlichkeiten. (Studies of the Color Pyramid Test on psychopathic personalities) *Z. diagnost. Psychol.*, 1958, 6, 18-38.
- Tinbergen, N. An objective study of the innate behavior of animals. *Bibliothèque biotheetica*, 1942, 1, Part II, 39-98.
- Tinbergen, N. Social releasers and the experimental method required for their study. *Wilson Bull.*, 1948, 60, 6-51.
- Wexner, Lois B. The degree to which colors (hues) are associated with mood tones. *J. appl. Psychol.*, 1954, 38, 432-435.
- Woods, W. A. Some determinants of attitudes towards color in combination. *Percept. mot. Skills*, 1956, 6, 187-193.
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Inconsistency Among Direct, Indirect and Projective Tests and General Neuroticism¹

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Summary: Inconsistency of response on the Alienation Syndrome for direct, indirect and projective tests was evaluated within 3 groups; a normal control, a group seeking therapeutic help, and a group with high internal stress not seeking help. Correlations and within person variance indicated that those students seeking therapeutic help were most inconsistent while those showing similar amounts of internal stress but not seeking therapeutic help were most consistent in their responses. Results raise questions about equating groups on the basis of similar test scores for anxiety.

Allport (1953) has advanced the hypothesis that the normal individual is "all of a piece" and will give the same picture of himself on direct tests that he does on projective tests. Only the neurotic, with many conflicts, repressed thoughts, etc. presents a different picture of himself on various types of tests designed to measure different levels of personality.

Differences in the individual's pattern of responses on direct, indirect and projective tests have been found by a number of investigators (e.g. Laforge, Leary, Naboisek, & Coffey, 1955; Lindzey & Tejessy, 1956; Davids & Pildner, 1958). The results from these studies have not been consistent. Although different kinds of responses did seem to be elicited by direct, indirect and projective tests, differences were not always in the predicted direction and the relationship to neurotic behavior was not clear.

The purpose of this study was to investigate the relationship of neuroticism to inconsistency within the individual as measured by direct, indirect and projective tests. Davids

(1953; 1955a; 1955b) studied the effect of motivational conditions on consistency with a battery of tests developed specifically for this purpose. Each test in the battery measured eight dispositions; optimism, pessimism, trust, distrust, sociocentricity, anxiety and resentment. The five negative dispositions (pessimism, distrust, egocentricity, anxiety and resentment) formed a highly intercorrelated group which he called the Alienation Syndrome (AS). The AS was highly correlated with measures of neuroticism (Davids & Pildner, 1958) and seemed to be an ideal vehicle for studying consistency in the neurotic and non-neurotic subject.

METHOD

Instruments Used

Four tests, all measuring the AS, made up the experimental test battery. Detailed description of these tests; scoring and development is given in Davids (1953) and Davids & Rosenblatt (1958).

The Self-rating Scale (SR) is a direct test consisting of 40 items relating to the eight dispositions upon which the S rates himself on a six point scale running from "much less than most people" to "much more than most people." Minimum score obtainable for the AS is 25; maximum is 150.

The Affect Questionnaire (AQ) is an indirect test consisting of 80 statements designed to relate directly to

¹This article is based on a portion of a Ph.D. dissertation submitted to the Department of Psychology, University of Illinois. This writer wishes to acknowledge the encouragement and help of the committee chairman, the late Leo Hellmer, and the other committee members, J. McV. Hunt, T. N. Ewing, R. LaForge, L. I. O'Kelley, and J. E. Hulett.

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the eight dispositions and to be rated by the S on a six point scale running from "strongly agree" to "strongly disagree." Minimum score obtainable on the AS is 40; maximum is 240.

The Sentence Completion Test (SCT) is a projective test consisting of 100 stems, 50 in the first person and 50 in the third person. Of these 100 stems, 80 relate directly to the eight dispositions and 20 are neutral. An interjudge reliability study rating 50 records using Davids' (1953) instructions was done by this E and another clinician.³ A reliability coefficient of .85 was obtained.

The *Thematic Apperception Test* (TAT) was the second projective test. Six cards of the standard series were selected for use: Cards 1, 2, 3BM, 4MF, 13MF, and 18GF. An interjudge reliability study rating 50 records on the AS using scoring instructions given by Davids & Rosenblatt (1958) yielded a reliability coefficient of .87.

Subjects

Ss for this study were obtained from two sources; volunteers from classes in Personality and in Abnormal Psychology at the University of Illinois, and students seeking help with personal problems at the University of Illinois Counseling Service. The study used three separate groups.

The Therapy Neurotic Group (T) was composed of 24 students who had recently applied for help with personal problems at the Student Counseling Service and who were judged by the counselor to whom they were referred for intake interviewing as being in need of long term therapeutic help. The greatest amount of time elapsing between this interview and completion of the test battery was two months; the shortest time lapse was two weeks.

Since motivation has been shown to

affect consistency on test response (Davids, 1955a; Davids & Pildner, 1958) it was felt necessary to include a group of students who appeared to be under a similar amount of internal stress but who were not at this time seeking therapeutic help. Therefore, a Neurotic Control Group (NeurC) of 20 students was selected whose scores on a general neuroticism factor on the *MMPI* placed them in the upper 20% of the distribution of scores of all students from the psychology classes tested. This general neuroticism factor was composed of the summed standard scores of the *F*, *D*, *Pt*, and *Sc* (*K* corrected) Scales. This had been found to make up a first principal component in several factor analytic studies.⁴ It is similar to that reported by Wheeler & Little (1956).

The Normal Control Group (Norm C) was composed of 79 students who voluntarily took the complete battery of tests, who indicated on a personal data sheet that they were not seeking therapeutic help at the present time nor had such help in the recent past, and excluding those students whose *MMPI* scores were in the upper 20% of the distribution.

A detailed comparison of these three groups on age, sex and year in school is given in Table I.

TABLE I—Comparison of Three Experimental Groups On Age, College Year and Sex

| | NeurC | NormC | T |
|--------------|-------|-------|-------|
| Mean Age | 21 | 21 | 21 |
| Median Age | 21 | 21 | 21 |
| Age Range | 19-27 | 18-43 | 18-31 |
| College Year | | | |
| Freshman | — | 1 | 8 |
| Sophomore | 3 | 9 | 3 |
| Junior | 9 | 38 | 8 |
| Senior | 6 | 25 | 4 |
| Graduate | 2 | 6 | 1 |
| Sex | | | |
| Male | 12 | 36 | 16 |
| Female | 8 | 43 | 8 |

A comparison of NeurC and T on the basis of the *MMPI* general neur-

³Appreciation is expressed to Pearl Schroeder and Myrna Blaufarb who scored the SCT and TAT protocols for the reliability study.

⁴LaForge, R. Personal communication, 1961.

oticism factor was made. Since the cut-off point in NeurC was arbitrary, it would have been quite possible to have selected a sample that had a mean which was significantly different from T for general neuroticism. A t test was run between the means for the two groups on general neuroticism. A t equal to 1.02 resulted which was not significant at the .05 level of confidence indicating that the means for the two groups on this dimension are reasonably comparable.

Distortion that might have been introduced by the method of selection of NeurC was checked by comparing variances on all tests for NormC with NeurC, and NeurC with T. The F ratios that resulted from comparisons either were not significant at the .05 level of confidence or indicated *more* variance within the NeurC than in T. This would suggest that correlations within NeurC were not artificially decreased because of the selection procedure.

Testing Procedure

The battery of tests was administered in two sessions. Ss from the psychology classes were given the *TAT* and *SCT* during one 50 minute class period. The *TAT* pictures were projected on a screen in a semi-lighted room and were left there for the full $4\frac{1}{2}$ minutes given to the students to write a story for any one picture. Their answer sheets provided an outline in question form that they could follow to help them include all important items in their stories in the time available. Following the presentation of the six *TAT* slides, the Ss went immediately to the *SCT* and in almost all cases were able to finish both tests in the allotted time. The other tests of the battery were given at announced times in University class rooms and the subject could choose a time which best fit into his own schedule. Several Ss were unable to finish the tests in the two hour period and were allowed to return to another

group testing session or to finish the battery in E's office.

Testing conditions for T were kept as comparable as possible to those of the students in the psychology classes. The *TAT* and *SCT* tests were always given in a group situation in a University class room with at least three people participating and prior to the taking of the other tests. The second session was not always scheduled as a group situation but the same order of testing was always maintained.

RESULTS

Analysis of Means between Groups

Means on all the tests were compared for NormC and T, and for NeurC and T (a comparison of NormC and NeurC was not appropriate as they had initially been drawn from the same sample and were separated on the basis of the *MMPI*).

A comparison of the means for T and NormC using the t test showed differences for the *TAT* ($t = 2.36$, $p < .05$), *SCT* ($t = 4.89$, $p < .005$), *AQ* ($t = 4.92$, $p < .005$) and *SR* ($t = 3.20$, $p < .005$). A comparison of the means for T and NeurC using the t test showed only one test, the *AQ* ($t = 3.79$, $p < .005$), in which there was a difference greater than one could expect by chance alone.

Analysis of Consistency within the Three Experimental Groups

In examining the correlation matrices for the three groups (presented in Table II) one may note several important trends in within group consistency. The group which shows the fewest significant intercorrelations on the test battery is T. Both NormC and NeurC have only three correlations that fail to reach significance at the .05 level or better; T has eight out of ten that fail to reach statistical significance. These observations are summarized in Table III showing the concordance coefficients (W) for the three groups.

Since significance of differences between W 's can not be tested, another

TABLE II — Correlation Matrices for the Three Experimental Groups

| | TAT | SCT | AQ | SR |
|-----------------|------|-------|-------|-------|
| NormC (N=79) | | | | |
| MMPI | .13 | .52** | .30** | .42** |
| TAT | | .54** | .09 | .10 |
| SCT | | | .39** | .31** |
| AQ | | | | .32** |
| NeurC (N=20) | | | | |
| MMPI | .30 | .51* | .55** | .57** |
| TAT | | .28 | .61** | .33 |
| SCT | | | .42* | .42* |
| AQ | | | | .60** |
| T (N=24) | | | | |
| MMPI | -.07 | .43* | -.39 | .24 |
| TAT | | .54** | .36 | .17 |
| SCT | | | -.21 | -.05 |
| AQ | | | | .39 |

* $p < .05$ ** $p < .01$

TABLE III — Concordance Coefficients and Average Rank Correlations for The Three Experimental Groups

| | W | χ^2_r | $r_{s\alpha v}$ |
|--------------|-----|------------|-----------------|
| NormC (N=79) | .40 | 123.66* | .20 |
| NeurC (N=20) | .58 | 44.88** | .44 |
| T (N=24) | .34 | 31.00 | .12 |

* $p < .05$ ** $p < .01$

statistical analysis was performed. The amount of variance for individuals from one test to another in the battery was treated as a score and the resulting means were tested for significant differences. In order to make the test scores comparable standard scores were computed for each with all Ss pooled into one group. The scores for each individual were then treated as a distribution and the variance for this distribution computed. This variance became the individual's score and a t test was run comparing NormC and T, and NeurC and T. The results of this analysis showed a significantly greater consistency for NeurC in comparison to T. However, the difference between the means for T and NormC were not significantly greater than could be expected by chance alone.

DISCUSSION

The results from this study are provocative. Although T's pattern of responses tends to confirm the original hypothesis, NeurC's pattern indicates that such inconsistency is not solely a product of the kind of internal stress measured by a test like the MMPI. One must ask, "What does consistency on a battery of tests such as this mean?"

Allport felt that if an individual were well adjusted, the kinds of conflicts, attitudes and feelings he reports about himself will be highly correlated with the kinds of responses he makes on tests designed to tap a deeper level of personality. The individual who is disturbed and in conflict will not be aware of his real feelings and therefore on tests designed to tap deeper levels of consciousness the disturbed individual's scores will reflect a very different picture than his self-report. However, Allport's hypothesis may be true only of the individual whose ability to function effectively has broken down. Not all people burdened with neurotic conflicts and personality trends face personality disorganization. These individuals' defenses may prevent expression of their conflicts in the kinds of tests we currently have available. Perhaps the NeurC individual has maintained a more effective defense system to protect himself from awareness of underlying conflicts.

There were several differences between the two control groups and T which should also be considered. Despite the fact that the mean and median ages for the three groups were the same, there were more freshmen in T. This may indicate that T had had more trouble in making a satisfactory adjustment all along or for some reason had been prevented from following the usual transition to college immediately following high school graduation. One would certainly expect to find more serious environmental problems in T, but this in

and of itself could not account for the results of this study.

Another interesting difference between these two groups appeared in the mean scores obtained on the tests used. Most test means for T and NeurC did not differ from each other significantly. The one exception was the AQ. As with the other tests in the battery, this test has been found to correlate rather highly with measures of general neuroticism. The emphasis of the test is upon the isolation and general dissatisfaction of the individual. It was designed to be an indirect test with the items on the test describing the world rather than asking the individual about himself. Apparently NeurC individuals do not see the external world as threatening or hostile, while the T individual does. Perhaps the NeurC individual has come to terms with his world and feels less need to make a change in patterns of adjustment in relationship to it. One wonders, also, if situational stress may not have elevated NeurC scores on the other tests despite an otherwise normal adjustment pattern. One student in NeurC in discussing his test scores indicated that he had just returned to school following hospitalization for acute nephritis, a realistic health problem still causing him considerable concern.

Whatever the reasons for the differences that do exist between T and NeurC, this study certainly reaffirms the need for caution in equating clinic and non-clinic groups on the basis of a test score alone. More needs to be known about the differences between individuals who obtain high scores on scales designed to measure

internal stress but who do not feel the need for help, and individuals with similar scores seeking help. There may be some fundamental personality differences involved that need to be understood and taken into account.

REFERENCES

- Allport, G. W. The trend in motivational theory. *Amer. J. Orthopsychiat.*, 1958, 23, 107-119.
- Davids, A. The influence of personality on auditory apperception and memory. Unpublished doctoral dissertation, Harvard University, 1953.
- Davids, A. Alienation, social apperception and ego structure. *J. consult. Psychol.*, 1955, 19, 21-27. (a)
- Davids, A. Comparison of three methods of personality assessment: direct, indirect, and projective. *J. Pers.*, 1955, 23, 423-440. (b)
- Davids, A., & Pildner, H. Jr. Comparison of direct and projective methods of personality assessment under different conditions of motivation. *Psychol. Monogr.*, 1958, 72, No. 11 (Whole No. 464).
- Davids, A., & Rosenblatt, D. Use of the TAT in assessment of the personality syndrome of alienation. *J. proj. Tech.*, 1958, 22, 145-152.
- LaForge, R., Leary, T. F., Nabolssek, H. B., & Coffey. The interpersonal dimensions of personality: II. An objective study of repression. *J. Pers.*, 1955, 23, 129-153.
- Lindzey, G., & Tejessy, C. Thematic Apperception Test: Indices of aggression in relation to measure of overt and covert behavior. *Amer. J. Orthopsychiat.*, 1956, 26, 567-576.
- Wheeler, W. M., Little, K. B., & Lehner, G. F. J. The internal structure of the MMPI. In Welsh, G. S., & Dahlstrom, W. G. (Eds.) *Basic Readings on the MMPI in Psychology and Medicine*. Minneapolis: University of Minnesota Press, 1956.

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Received April 14, 1966

Revision received August 16, 1966

A Comparison of the Scores of White and Negro Male Juvenile Delinquents on Three Projective Tests

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Summary: The TAT, Rosenzweig PF Study and the Holtzman Inkblot Technique scores of lower class white and Negro male juvenile delinquents matched for MA were compared to determine if norms derived on the former group are applicable to the latter. No differences were found on 69 Stein TAT scores or 7 PF scores but significant differences were found on 3 of the 22 HIT scores. When the present results were compared with those previously reported in the literature it was noted that these results were consistent with those of other studies which have matched the Negro and white samples on IQ, but that studies which have not done so have reported more projective test differences. It was concluded that projective test differences should not be used to make inferences about basic racial personality structure unless careful matching on other variables has been carried out. It was also suggested that further research on inter-racial differences in projective test performance should be conducted using test batteries and larger samples of matched Negro and white clients from settings more representative of general clinical practice.

While it is rare for Negro samples to be used in the development or standardization of projective tests, it is common for such tests to be used in clinical settings in which a substantial proportion of the clients are Negro. Since it is questionable whether tests standardized on whites can be automatically applied to Negroes, it is necessary to compare the test performance of white and Negro clients in various settings to determine whether special norms should be derived for the latter group.

The present study compares the performance of white and Negro juvenile delinquents on the Thematic Apperception Test (TAT), the Rosenzweig Picture Frustration Study (PF) and the Holtzman Inkblot Technique (HIT). A survey of the literature, summarized in Table I, indicates that no prior studies have investigated the differences between white and Negro juvenile delinquents on these tests, despite the fact that a large proportion of the clients in court clinics are often Negro. Nor have any studies simultaneously investigated several tests in order to determine if some are more

sensitive to inter-racial differences than others.

The literature shows two general trends. The first is for fewer differences to be found in clinical samples than normal ones. The second is for more differences to be found in studies in which the white and Negro samples are not equated for socioeconomic status and IQ. These trends are somewhat confounded, however, since IQ generally has been more closely controlled in the investigations of clinical samples.

Subjects and Procedures.

As part of another study (Megargee, 1966) Cards 1, 3BM, 4, 6BM, 7BM, 8BM, 12M, 13B, 14 and 18GF of the TAT, the Rosenzweig P-F Study² and the Holtzman Inkblot Technique were individually administered to 26 white and 45 Negro lower class juvenile delinquents who were confined in the Alameda County (California) Juvenile Hall while awaiting court hearings. Standard procedures were followed with the exception that the TATs and HITs were tape recorded. In order to eliminate any systematic bias in the scoring, Probation Depart-

¹The writer would like to thank Patrick Cook and Ellen Paule for their assistance on this study.

²The Adult or the Children's form of the PF was administered depending on the S's chronological age.

TABLE I—Summary of Research on Differences Between White (W) and Negro (N) Groups on the TAT, the Rosenzweig P-F Study and the Rorschach

| Test | Study | Ss | Method | Findings |
|--|--------------------------------------|--|--|---|
| TAT | Abel, 1945 | 15 N ♀, 15 N ♂, 15 W ♀, 15 W ♂, institutionalized morons, matched for IQ. | Individual administration of 22 old-series TAT cards by W ♀ E. | N ♂ significantly lower on number of ideas and word count. No difference in themas. |
| | Korchin, Mitchell & Meltzoff, 1950 | 80 N ♂ & 80 W ♀, ages 22-40 matched for SES, occupation and education. | Individual administration of cards 1BM, 2, 6BM and 7 by W ♂ E. | No difference in story length. |
| | Mussen, 1953 | 50 W ♂ & 50 N ♂, lower class campers; ages 9-14, at least normal IQ, matched for age. | Individual administration of cards 1, 2, 3, 4, 6, 7, 8, 12, 13B, 14, 16, 18GF and a special card by W ♂ E. | Significant differences on 14 of 50 modified Stein scores. |
| | Veroff, Atkinson, Feld & Gurin, 1960 | National survey sample: 538 W ♂, 31 N ♂, 688 W ♀, 60 N ♀. | N and W Es administered separate sets of 6 special thematic cards to ♂ and ♀ Ss. | W ♀ > N ♀ on <i>n</i> Achievement N ♂ > W ♂ on <i>n</i> Power |
| Rosenzweig Picture- Frustration Study | McCary, 1950 & 1951 | 631 high school students. Aged 14-22 <i>North</i> : 57 N ♂, 108 W ♂, 30 N ♀, 80 W ♀. <i>South</i> : 46 N ♂, 146 W ♂, 73 N ♀, 91 W ♀. 190 Southern grade school children, aged 8-14. 30 N ♂, 60 W ♂, 50 N ♀, 50 W ♀. All Southern students in segregated schools. | Tested with adult and children's forms of P-F. Comparisons made by region, race and sex. | <p><i>E</i>: So. N ♀ A > So. W ♀ A So. W ♂ C > So. N ♂ C Total So. W.C. > Total So. N.C. <i>I</i>: So. W ♀ A > So. N ♀ A No. W ♀ A > No. N ♀ A No. W ♂ A > No. N ♂ A Total W ♂ A > Total N ♂ A <i>M</i>: So. N ♂ A > So. W ♂ A So. N ♂ C > So. W ♂ C Total So. N ♂ C > Total So. W ♂ C <i>O-D</i>: No. N ♀ A > No. W ♀ A <i>E-D</i>: So. W ♂ C > So. N ♂ C Total So. W.C. > Total So. N.C. <i>N-P</i>: No. W ♀ A > No. N ♀ A Total So. N.C. > Total So. W.C. <i>GCR</i>: So. W ♀ A > So. N ♀ A</p> |

TABLE I—continued

| Test | Study | Ss | Method | Findings |
|---|------------------------------|---|---|--|
| | McCary, 1956 | Adult sample from McCary, 1950. | Presents means and σ s for various adult subgroups compared by McCary (1950, 1951). | Normative study only. |
| Rosenzweig Picture- Frustration Study | McCary & Tracktir, 1957 | Northern adult sample from McCary (1950). | Hi, Middle and Lo IQ subgroups defined on basis of Otis IQ; interracial differences in each IQ classification reported. $W\ IQ > N\ IQ$ within each subgroup. | $E: Lo\ IQ\ N\sigma^{\circ} > Lo\ IQ\ W\sigma^{\circ}$ $I: Lo\ IQ\ W\sigma^{\circ} > Lo\ IQ\ N\sigma^{\circ}$ $O-D: Hi\ IQ\ N\sigma^{\circ} > Hi\ IQ\ W\sigma^{\circ}$ $N-P: Mid.\ IQ\ W\sigma^{\circ} > Mid.\ IQ\ N\sigma^{\circ}$ $GCR: Lo\ IQ\ W\sigma^{\circ} > Lo\ IQ\ N\sigma^{\circ}$ |
| | Portnoy & Stacey, 1954 | 60 institutionalized retarded children. 15 $W\sigma^{\circ}$, 15 $W\sigma^{\circ}$, 15 $N\sigma^{\circ}$, 15 $N\sigma^{\circ}$, matched for age and IQ. | Standard | $M: N\sigma^{\circ} > W\sigma^{\circ}$ Total $N > Total\ W$ |
| | Abel, 1944 | N and W institutionalized morons: 26 $W\sigma^{\circ}$, 26 $W\sigma^{\circ}$, 27 $N\sigma^{\circ}$, 28 $N\sigma^{\circ}$. Matched for CA, IQ, length of institutionalization. | Rorschach individually administered by W E. | $N\sigma^{\circ} > W\sigma^{\circ}$ on R and Detail. Other non-significant trends reported. |
| Rorschach | Hunter, 1937 | 100 W and 100 N adults, matched for IQ, education, occupation and environment. | Individual administration of 84 by $W\sigma^{\circ}$ E. 16 others by $N\sigma^{\circ}$ E as control. | More N have Extrasensitive ($C > M$) Erlebnistypus than do W. More W have Introversive ($M > C$) Erlebnistypus than do N. |
| | Stainbrook & Siegel, 1944 | 40 W and 40 N high school Ss. 45 W and 45 N college Ss. Tested in segregated schools. $W > N$ in IQ. | Group Rorschach. | <i>High school:</i> $W > N$ on R, D, S, m, K, and CF. $N > W$ on FC. <i>College:</i> $W > N$ on R, D, S, O, M, ΣC , m, Fc, FK and CF. $N > W$ on FM. |
| Symbols: N: Negro W: White No.: Northern So.: Southern A: Adult C: Children | | | | |

ment psychologists⁸ administered all the tests and any identifying information was removed before the typed transcripts of the protocols were scored by the investigator.

Substantial age and IQ differences existed between the 26 white and 45 Negro Ss. These differences were eliminated by selecting 20 whites and 30 Negroes to form two subgroups equated for mental age. The mean MA of the white group was 180.7 months with a range of 143.2 to 218.5 months and the mean MA of the Negro group was 180.9 months with a range of 158.4 to 226.8 months. The mean CA of the white group was 191.2 months with a range of 167 to 211 months while that of the Negro sample was 185.8 with a range of 134 to 215.

The HIT and PF Study were scored in the standard fashion. The TAT was scored using the Stein Need-Press system (Stein, 1948). This resulted in 37 needs and 21 press; and additional 6 need and 5 press scores were obtained by combining discrete Stein categories; for example, "*n* Acquisition, social" and "*n* Acquisition, asocial" were combined to form an overall score labelled "*n* Acquisition."

The differences between the white and Negro samples on the 69 TAT variables, the 7 PF variables and the 22 HIT scores were tested by analyses of variance.

RESULTS AND DISCUSSION

The analyses of variance showed no differences significant at the .05 level for any of the 69 TAT variables or any of the 7 PF scores. In order to determine if this might be an artifact of the statistical procedure, 38 of the TAT variables which most closely approximated those studied by Mussen (1953) were reanalyzed using the non-parametric technique which he employed. Since only 3 of the 38 reached

significance on this reanalysis it was concluded that the lack of differences was not solely the product of the statistical procedures employed.

A comparison of these results with those obtained by other investigators suggests differences in intellectual ability rather than in basic personality structure are probably of primary importance in mediating inter-racial test differences. Abel (1945) and Portnoy and Stacey (1954) both used white and Negro samples matched for intellectual ability and Abel found no difference in TAT themes while Portnoy and Stacey found no PF differences among their male Ss and a difference on only one variable among the females. The findings of these two studies were thus quite similar to the present one in which the white and Negro samples were also matched for MA.

On the other hand, Veroff, Atkinson, Feld, and Gurin (1960), and McCary (1950, 1951) did not match for IQ and found a high proportion of significant differences, as did Mussen (1953), who excluded Ss of subnormal IQ but apparently did not match beyond this. The importance of IQ was particularly pointed out by McCary and Trackir (1957) who, reanalyzing some of the data used in the earlier studies by McCary (1950, 1951), reported that in the earlier investigation substantial and significant differences in IQ had existed between the white and Negro samples. They divided McCary's northern adult sample into thirds on the basis of IQ, and when they compared the PF scores within the high, middle and low IQ subgroups they found a substantial decrease in the proportion of significant differences. Moreover, since they reported that even after the sample was subdivided there were still significant IQ differences, even the significant differences in PF scores which remained could still have been associated with intellectual differences.

This pattern, along with the present results, suggests that differences which

⁸The writer would like to express his gratitude to George Barrett, Robert Ekblad, Richard Fulk, Lionel Lazowick and Nancy Mead who administered the test batteries.

are obtained between racial groups on projective tests should not be used to make inferences about differences in the basic personality structure of whites and Negroes unless the groups have been carefully matched on intelligence as well as other salient variables. Further research on other groups tested in other settings, using larger numbers of subjects, would be highly desirable to determine more precisely the relation between intelligence and apperceptive test performance as well as better identify the situations and samples in which inter-racial differences might be expected. The present study suggests that white norms are applicable to Negro clients of equivalent IQ in custodial settings. However, the range of settings which have been studied thus far, consisting of normal students and adults, institutionalized retardates, and now juvenile delinquents, is hardly representative of the samples usually tested in clinical practice. Further research using neuropsychiatric inpatients and outpatients should have high priority before any firm conclusions about racial differences on apperceptive tests are made.

On the HIT 3 of the 22 scores had differences significant at the .05 level: Pathognomic Verbalization (whites higher, $p < .03$), Anatomy (Negroes higher, $p < .04$) and Popular (whites higher, $p < .02$). Three other variables had noteworthy trends with p values of .10 or below: Reaction Time, Form Appropriateness and Color, on all of which the whites were higher.

These results, when compared with the results reported in the literature for the Rorschach, suggest that IQ differences can influence the pattern of inter-racial differences which will be obtained on inkblot tests as well. The present study, along with those of Abel (1944) and Hunter (1937) which also controlled IQ indicated less extensive differences than did the study by Stainbrook and Siegel (1944)

in which the whites had significantly higher IQs than the Negroes.

From the present data, and from the other studies which have controlled for IQ one could speculate that inkblot tests such as the Rorschach and HIT are more sensitive to inter-racial differences than are apperceptive tests such as the TAT and PF, other factors such as intellectual ability being equal. This must remain speculation however until further research using larger and more representative samples is performed.

To the writer's knowledge, this is the first study which has compared the HIT performance of whites and Negroes. The results indicate that normative research on Negro samples would be advisable to determine the reliability of the differences noted in this study. Until then the clinician should be cautious in interpreting Negro HIT protocols since the presently available norms are based solely on white samples.

REFERENCES

- Abel, Theodora M., Piotrowski, Z. & Stone, Gertrude. Responses of Negro and white morons to the Rorschach Test. *Amer. J. ment. Defic.*, 1944, 48, 253-257.
- Abel, Theodora M. Responses of Negro and white morons to the Thematic Apperception Test. *Amer. J. ment. Defic.*, 1945, 49, 463-468.
- Hunter, M. Responses of comparable Negro and white adults to the Rorschach Test. *J. Psychol.*, 1937, 3, 173-182.
- Korchin, S. J., Mitchell, H. E. & Meltzoff, J. A critical evaluation of the Thompson Thematic Apperception Test. *J. proj. Tech.*, 1950, 14, 445-452.
- McCary, J. L. Ethnic and cultural reactions to frustration. *J. Pers.*, 1950, 18, 321-326.
- McCary, J. L. Reactions to frustration by some cultural and racial groups. *Pers.*, 1951, 1, 84-102.
- McCary, J. L. Picture-Frustration Study normative data for some cultural and racial groups. *J. clin. Psychol.*, 1956, 12, 194-195.
- McCary, J. L. & Tracktir, J. The relationship between intelligence and frustration-aggression patterns as shown by two racial groups. *J. clin. Psychol.*, 1957, 13, 202-204.
- Megargee, E. I. Undercontrolled and over-controlled personality types in extreme antisocial aggression. *Psychol. Monogr.*, 1966, 80, No. 3 (Whole No. 611).

- Mussen, P. H. Differences between the TAT responses of Negro and white boys. *J. consult. Psychol.*, 1953, 17, 373-376.
- Portnoy, B. & Stacey, C. L. A comparative study of Negro and white subnormals on the children's form of the Rosenzweig P-F Test. *Amer. J. ment. Defic.*, 1954, 59, 272-278.
- Stainbrook, E. & Siegel, P. A comparative group Rorschach Study of southern Negro and white high school and college students. *J. Psychol.*, 1944, 17, 107-115.
- Stein, M. I. *The Thematic Apperception Test: an introductory manual for its clinical use with adult males*. Cambridge, Mass.: Addison-Wesley Press, Inc., 1948.
- Veroff, J., Atkinson, J. W., Feld, Sheila C. & Gurin, G. The use of thematic apperception to assess motivation in a nationwide interview study. *Psychol. Monogr.*, 1960, 74, No. 12 (Whole No. 499).
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Received May 18, 1966
- Revision received August 6, 1966

Global and Sign Approaches to Rorschach Assessment of Beginning Teachers¹

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Summary: Rorschach protocols were evaluated on the basis of two quantitative and two global approaches to interpretation. The quantitative included a sign approach and the RPRS; the global, a general assessment of adjustment and evaluation of a cognitive-integrative level. In the sign-assessment, seven specific signs were noted as significantly correlated with independent supervisors' ratings of the twenty beginning junior college teachers who served as subjects. The total of the global sign evaluation and the assessment of integrative ability were also highly significant. The RPRS and the global assessment of general adjustability were significant but at a lower level. The hypothesis—that a global approach will prove as effective as a sign approach in predicting independent ratings—was supported. It was suggested that either the sign or global approach to Rorschach interpretation is effective when consideration is taken both of the subjects tested and the demands of the employment and environmental situations.

In their interpretations of individual protocols, Rorschach workers have long been besieged by the question of whether to use a sign approach, a global approach, or a combination of the two. According to the Klopfer system (Klopfer, Ainsworth, Klopfer, & Holt, 1954), both quantitative and qualitative assessments are traditionally employed. Even within this framework, however, questions may be raised as to the specific manner of handling the material.

Many investigations have described the use of particular approaches to Rorschach interpretations. A list of 17 signs was published by Davidson (1950) in an attempt to reach a "total adjustment" measure. Davids and Talmadge (1963) examined the generality of this list and applied the signs in clinical settings far removed from those involved in the original investigations. Munroe's Inspection Technique (1941) records major deviations from the normal range on a comprehensive checklist which is composed of separate entries summarizing Rorschach data. Twenty-two signs of adjustment, consisting chiefly of indices designed by Hertz (1946), were

cited by Muench (1947). And additional studies in which criteria of change were based upon specific Rorschach signs are reported by Cadman, Misbach, & Brown (1954); Lord (1952); and Piotrowski & Schreiber (1952). Conflicting results among these studies suggest "a considerable lack of agreement in the experimental literature about the usefulness of a Rorschach sign approach (in evaluating therapeutic change)." (Zamansky & Goldman, 1960, p. 76).

Investigations which employ global treatments of Rorschach data similarly show inconsistent results. Carr (1949) included both total evaluations by an experienced Rorschach worker and a sign approach, while Krout, Krout & Dulin (1952) used global assessments of patients in therapy. In the Zamansky and Goldman study, it was hypothesized that the global treatment of the data would prove to be more valid than the 11 Davidson signs of general adjustment; with the exception of one sign, the hypothesis was supported by the findings.

Whether, then, Rorschach data can better be interpreted by a global or a sign approach is not presently determined. It may well be that the dilemma can only be resolved by each

¹The research described herein was supported by a grant from the Research Committee, University of California, Los Angeles.

interpreter dealing with particular material; that is, the approach most readily and aptly employed may be that which better fits the investigator's own individual needs and training.

A more basic and pertinent problem would seem to be the selection of a list of signs or a "global set" which is relevant to certain investigations. Each separate group may demand different criteria for interpretation of the test material. Murray (1938) stresses the integration of situational and personal determinants in the prediction of future performance and Stern, Stein, & Bloom (1963) point out the necessity of selecting evaluative tools which are directed to the population in question. Following their rationale, decisions concerning the use of the global or sign method then become subordinate to the fundamental issue of choosing particular and specific determinants which would appear to be directly related to a unique group in its special setting.

The present study was designed to assess the "adjustability" of a group of adults who were moving into new environmental settings. The specific hypothesis to be tested was that when there is recognition of both the subjects and the environments in which they will function, a global approach to evaluating Rorschach data will prove as effective as a sign approach in predicting supervisors' ratings of success in subjects' employment situations.

METHOD

Subjects

All twenty interns enrolled in a junior college teacher preparation program at UCLA were Ss of this study; they ranged in age from 22 to 47 years, with a median age of 29. Requirements for admission to the program included: 1) a master's degree in an academic subject area; 2) no previous teaching experience; and 3) no prior courses in Education. In addition, each candidate had initially

been interviewed by college administrators and 'accepted for a one-year, full-time teaching position in one of 12 junior colleges in California. All were judged by the application committee to be well functioning individuals, free of apparent emotional problems.

Procedure

Early in the program, the Rorschach was given to all Ss in a single group session, according to the procedure suggested by Harrower (1951). In addition, individual inquiries of 10 to 25 minutes were conducted with each S, wherein certain questions regarding determinants, locations and populars were clarified. Each protocol was scored using the Klopfer system and assessed on the basis of four approaches: 1) a quantitative or sign approach; 2) the Rorschach Prognostic Rating Scale (Klopfer, *et al.*, 1954); 3) a global assessment of general adjustment; and 4) a global assessment of cognitive-integrative level.

The quantitative assessment included thirteen specific signs which had been selected for this particular group of Ss. A rating was given to each sign, representing the extent to which the individual fit the criteria suggested by Rorschach interpretative hypotheses. The specific signs and the quantitative proportions which provided the criteria for evaluation are shown in Table I.

In the table, signs 1-3 pertain to form level. Signs 4, 6, and 7 relate to the determinants M, FM, and m; sign 5 considers F%; signs 8, 9, and 10, the relationships among FK, Fc, and F and the chromatic: achromatic ratios. Signs 11 and 12 deal with the ratio of FC: (CF+C); and sign 13, with A%. All these signs were rated on the basis of the Rorschach hypotheses which are described in Volume I of *Developments in the Rorschach Technique* (Klopfer *et al.*, 1954, 249-297).

The Rorschach Prognostic Rating Scale (RPRS), developed as a measure of ego strength and a predictor of

TABLE I—Signs for the Assessment of
Rorschach Ratings of Junior
College Interns

| Rorschach Sign | Rating |
|--|--------|
| 1. Maximum form level | |
| ≥ 3.0 | 5 |
| 2.5 | 4 |
| 2.0 | 3 |
| 1.5 | 2 |
| ≤ 1.0 | 1 |
| 2. Minimum form level | |
| ≥ 1.5 | 5 |
| 1.0 | 4 |
| 0.5 | 3 |
| 0.0 | 2 |
| ≤ -0.5 | 1 |
| 3. Average form level | |
| ≤ 2.0 | 5 |
| 1.5 - 1.9 | 4 |
| 1.0 - 1.4 | 3 |
| 0.5 - 0.9 | 2 |
| ≥ 0.4 | 1 |
| 4. M | |
| ≥ 3 | 3 |
| 1 or 2 | 2 |
| 0 | 1 |
| 5. F% | |
| 20 - 50% | 3 |
| 50 - 60% | 2 |
| $> 60\%$ | 1 |
| $< 20\%$ | 1 |
| 6. M, FM, and color relationships | |
| FM = M + color | 3 |
| FM = M + no color | 1 |
| FM $> 2M$ | 1 |
| M $> FM$ | 3 |
| M $> 2FM$ | 2 |
| FM between 1M and 2M | 2 |
| 7. M, FM, and m relationships | |
| FM + m $> 1\frac{1}{2}M$ | 1 |
| M = FM + m | 3 |
| 8. FK, Fc, and F relationships | |
| (FK + Fc) $> \frac{1}{4}F$ | 1 |
| (FK + Fc) = $\frac{1}{4}$ - $\frac{3}{4}F$ | 3 |
| (FK + Fc) $< \frac{1}{4}F$ | 1 |
| • 9. and | |
| 10. Chromatic: achromatic ratios | |
| (Fc + c + C') = (FC + CF + C) | 1 |
| (Fc + c + C') = $\frac{1}{2}(FC + CF + C)$ | 3 |
| (Fc + c + C') $< \frac{1}{4}(FC + CF + C)$ | 1 |
| ••11. and | |
| 12. Ratio of FC: (CF + C) | |
| FC $> (CF + C)$ | 3 |
| FC = (CF + C) | 2 |
| FC $< (CF + C)$ | 1 |
| 13. A% | |
| 20 - 40% | 3 |
| $< 20\%$ | 2 |
| 40 - 50% | 2 |
| $> 50\%$ | 1 |

Total possible maximum score = 39

Total possible minimum score = 11

*Data correlated separately as chromatic and achromatic.

••Data correlated separately as FC and (CF + C).

response to psychotherapy, is designed to quantify in an objective way the "intuitions" or "hunches" of experienced clinicians. Each response is rated for form level and five Rorschach determinant categories which are assigned differential quantitative weights according to a specific set of qualitative criteria. Klopfer describes the RPRS as measuring "the adjustment potential of the individual". The various sections of the scale are intended to "differentiate the concept of ego-strength in its most important components; reality testing, emotional integration, self-realization, and mastery of reality situations . . . (It taps) the combined total of 1) the adjustment level or available ego-strength . . . and 2) the unused portion of the developmental and adjustment potential" (Klopfer, *et al.*, 1954, p. 688-689).

The global assessment of each protocol was a purely subjective evaluation based upon clinical "intuition" or "hunch". The interpreter (the senior author) rated each S on his potential adjustability to a teaching situation.

A second global approach was used to assess the integrative level of each of the Rorschach protocols. The interplay of dimensions was here considered to establish a general rather than a strictly numerical evaluative system. Form level highs and lows, number and quality of M responses, proportion of pure form determinants, number of responses, the types and percent of location categories, and the amount of differentiation within the W responses were variables considered. On the basis of these criteria, the Rorschachs were rated on a 5-point scale which followed the ratings assigned by Bloom (1956) in the *Taxonomy of Educational Objectives*: 1 = Knowledge; 2 = Comprehension; 3 = Application; 4 = Analysis; and 5 = Synthesis. If a subject, for example, were judged to function at the level of application, he was given a rating of 3; if he seem-

TABLE II — Correlation of Individual Rorschach Signs and Total of the 13 Individual Signs with Supervisors Ratings

| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---------------------------------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1. Maximum Form Level Rating | 03 | 55 | -42 | 21 | 29 | 43 | 02 | 43 | 15 | 09 | 43 | 40 | 61 | 36 | 49 |
| 2. Minimum Form Level Rating | | 36 | -24 | -16 | 29 | -02 | -06 | -24 | -39 | 70 | -40 | -42 | 12 | -08 | -02 |
| 3. Average Form Level Rating | | | -47 | 45 | 31 | 22 | 13 | -05 | -03 | 36 | -18 | -06 | 45 | 43 | 40 |
| 4. F% | | | | -07 | -36 | -30 | -05 | 04 | 10 | -40 | 23 | 11 | -07 | -23 | -43 |
| 5. M | | | | | 18 | 39 | 24 | 32 | 55 | -10 | 19 | 52 | 49 | 57 | 42 |
| 6. lM | | | | | | 79 | -23 | 29 | -07 | 74 | -02 | 18 | 39 | 16 | 53 |
| 7. FM + m | | | | | | | -40 | 53 | 09 | 37 | 10 | 42 | 46 | 28 | 59 |
| 8. FK + Fc | | | | | | | | -15 | 28 | -11 | 06 | 08 | 03 | 25 | -10 |
| 9. FC | | | | | | | | | 35 | -06 | 64 | 85 | 50 | 26 | 45 |
| 10. Cf | | | | | | | | | | -88 | 50 | 73 | 22 | 36 | 31 |
| 11. A% | | | | | | | | | | | -40 | -26 | 10 | 00 | 27 |
| 12. (Fc + c + C') | | | | | | | | | | | | -71 | 36 | 08 | 24 |
| 13. (FC + CF + C) | | | | | | | | | | | | | 55 | 39 | 45 |
| 14. Total of All Signs | | | | | | | | | | | | | | 60 | 49 |
| 15. Junior College Supervisor Ratings | | | | | | | | | | | | | | | 67 |
| 16. UCLA Program Director Ratings | | | | | | | | | | | | | | | |

Decimals omitted

$r = .38$ $p < .10$ two tailed test $r = .44$ $p < .05$ two tailed test $r = .56$ $p < .01$ two tailed test

ed to meet the criteria of both the application and analysis groups, his rating would be 3 + 4/2 or 3.5.

After each intern had served a year as a beginning instructor in a junior college, he was rated by both the program director at UCLA and by his campus supervisor. Ratings by the program director were made on the basis of the intern's performance in the summer preservice program and in seminars held on the university campus during the academic year. On the basis of his demonstrated adaptation to the demands of the training program, each intern was placed into one of three categories. He was rated a 3 if, in the opinion of the director, he constructed objectives and selected media relevant to the course he planned to teach in the junior college; 2, if his objectives and selected media appeared to be average; 1, if he did not meet the demands of the tasks.

Each junior college supervisor rated the intern or interns on his staff on a 4-point scale. The categories (high of 4; low of 1) evaluated the trainee's relationships with students, faculty, administrators, and the community at large. The program director, the junior college supervisors, and

the psychological test evaluator all acted independently; none was aware of the others' ratings.² The director's and the supervisors' ratings constituted the independent criterion of ability to make an adequate adjustment in the changing role from student to teacher.

RESULTS

Correlations of the 13 individual Rorschach signs with the independent ratings of each subject by the junior college supervisor and the UCLA program director are shown in Table II. According to the statistical analyses, 7 of the 13 signs show significant positive relationships to supervisors' ratings. In addition to the correlations of the ratings assigned to each of the specific signs, the sum of all 13 signs was given to establish a total numerical adjustment score. Total adjustment scores in this group ranged from 22 to 34, with a mean of 29.4. These scores correlated significantly (at the .01 level) with the junior college supervisor ratings and also significantly (at the .05 level) with the ratings given by the UCLA program director.

²The authors wish to express their appreciation to Arnold Schroeder for his statistical assistance and to Richard Gillies for his help in collecting data.

TABLE III—Correlations of Global and Quantitative Test Ratings and Supervisors' Evaluations

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---------------------------------------|---|-----|-----|-----|-----|-----|
| 1. Total Rorschach Signs | | .62 | .51 | .63 | .60 | .49 |
| 2. Rorschach Global Rating | | | .45 | .65 | .41 | .39 |
| 3. Rorschach Prognostic Rating Scale | | | | .44 | .39 | .35 |
| 4. Rorschach Integrative Level | | | | | .60 | .54 |
| 5. Junior College Supervisor Ratings | | | | | | .67 |
| 6. UCLA Program Director Ratings | | | | | | |
| $r = .38 = p < .10$, two-tailed test | | | | | | |
| $r = .44 = p < .05$, two-tailed test | | | | | | |
| $r = .56 = p < .01$, two-tailed test | | | | | | |

Table III presents an intercorrelation matrix of the four Rorschach ratings and the two supervisors' ratings. Rorschach ratings are: 1) quantitative assessment of the total of 13 Rorschach signs specifically selected for this population; 2) the global assessment of general adjustment; 3) the RPRS; and 4) the global evaluation of cognitive-integrative level.

The four approaches to interpretation of the Rorschach data all correlated significantly with each other. The ratings given in accordance with the Rorschach integrative level related significantly (.01 level) to ratings given by the supervisors, as did the total ratings of Rorschach signs (.01 level). The global adjustment evaluations and the RPRS did not correlate with supervisors' ratings beyond the .01 level of significance.

When the combined quantitative ratings (13 signs and RPRS) were correlated with the combined global assessments (for adjustability and cognitive-integrative level), the results were significant at the .05 level in two cases and at the .01 level in one case. These results are shown in Table IV.

TABLE IV—Correlations of Combined Quantitative and Combined Global Ratings

| Variable | r |
|---|-----|
| Rorschach sign totals vs. Global adjustment + Integrative level | .69 |
| Global adjustment vs. Rorschach sign totals + RPRS | .50 |
| Rorschach sign total + RPRS vs. Global adjustment + integrative level | .55 |

DISCUSSION

This study did not resolve the dilemma regarding the effectiveness of either a global or a sign approach in the interpretation of Rorschach data. Both methods of assessing the material proved to be statistically significant. This supports the hypothesis that a global approach will prove as effective as a sign approach in predicting independent supervisor ratings when there is recognition of both the Ss and the environments in which they will function. However, the global approach provided highly significant predicted ratings only insofar as integrative ability was considered to be the over-riding variable. This would seem to indicate that consideration of the general environmental settings in which the subjects must function is an important factor in predictability.

The beginning teacher faces tasks which demand particular skills in weaving together new role, status, and job requirements. In order to be successful, he must adjust to the new order by integrating previous experiences and past performances with present tasks, behavior which requires a fairly high level of cognitive-integrative ability. One S (#6), for example, who was rated as a "1" by both the program director and the junior college supervisor, achieved a 2.5 as her integrative level. Her RPRS rating was 4.96 (mean RPRS for this sample was 7.48) and her total adjustment score was 22, whereas the mean of the sign assessments was 29.4. Another S (#4) who was rated as a high, "3" by

his program director and another "3" (on a 4 point scale) by his college supervisor achieved a 4.5 integrative level, a 11.40 RPRS, a 31 on his total sign adjustment rating, and a 4 on general global assessment. A third subject (#18) achieved a 1.5 low for integrative level and was rated low, "1", by both independent supervisors. This was consistent with the Rorschach evaluator's rating of "2" and with the total sign adjustment score of 25; it was not consistent with his average RPRS of 7.28. When the demands of the new situation are considered in interpreting Rorschach protocols of subjects whose work performance is assessed by independent raters, the most significant predictions seem to be achieved.

A general global adjustment rating did not prove as accurate a predictor of supervisors' ratings. S #6, referred to above, for example, was given a global adjustment rating of "3" (average). In light of the explanation above, since the Rorschach interpreter was aware of the general employment demands, this is not understood. It might well be that whereas "integrative ability" would appear to be a fairly clear-cut and narrow-bounded variable, "general adjustability" is much larger in scope. Significant predictions, then, perhaps even of a global nature, demand a specific orientation.

Evaluations based upon the total of the 13 specified signs also provided a definite relationship with the independent criteria. Again, it is suggested that Ss' abilities to meet the demands of their new positions were better predicted by selecting signs which indicate a specific type of adjustment to a specific situation. The Rorschach signs most related here to supervisors' evaluations were: form level, M, FM, FM + m, FC, and (FC + CF + C). By including the type and quality of determinants used in response to the ink-blot stimuli, form level is an essential component of the level of integration.

Significant correlations of M with the independent criteria bear out the contention that M is "the most significant determinant, . . . (suggesting) perception, at a highly differentiated and usually well-integrated level" (Klopfer et al, 1954, p. 254). FM, indicating both awareness of impulses to immediate gratification and possible preoccupation with ego-centric needs, has both positive and negative implications. The underlying rationale that M develops out of FM through m may well explain its importance in this study. It is unfortunate that the ratio of M:FM + m was not examined in the individual sign analysis but only in the summing of all signs to establish a total rating.

The presence of color determinants as significantly related to independent ratings seems to be understandable when one considers again the role of the teacher and the employment demands. Considering still the specific role with its concomitant demands, we might wonder, however, why the determinants which relate to awareness of affectional needs are not seen as important variables in the results of this study. Our raw data shows that of the twenty Ss, twelve did not offer Fc as a main determinant. Of these, three excluded Fc also as an additional determinant. The meaning of this is not clear. It might well be that as long as the ego processes appear to be functioning fairly well, as long as there is awareness of instinctual needs and reactivity to environmental stimuli, the more basic awareness of early security needs need not be expressed. Whether this is truly a function of the particular type and size sample engaged in this study, whether it is due to the group nature of the test administration, or whether there were other intervening and unknown variables, cannot be determined at this time. It would seem, however, that while the individual signs and their predictability of independent evaluations are of interest, more important to the purposes of this study is the fact that a

list of signs selected for a particular population does correlate with supervisors' ratings of groups functioning in specific situations.

REFERENCES

- Bloom, B. S. *Taxonomy of Educational Objectives*. New York: David McKay Company, Inc., 1956.
- Cadman, W. H., Misbach, L. & Brown, D. V. An assessment of roundtable therapy, *Psychol. Monogr.*, 1954, 68, No. 384.
- Carr, A. C., An evaluation of nine nondirective psychotherapy cases by means of the Rorschach. *J. consult. Psychol.*, 1949, 13, 196-205.
- Davids, A. & Talmadge, M. A. study of Rorschach signs of adjustment in mothers of institutionalized emotionally disturbed children, *J. proj. Tech. and pers. Assmt.*, 1963, 27.
- Davidson, H. H. A measure of adjustment obtained from the Rorschach protocol. *J. proj. Tech.*, 1950, 14, 31-38.
- Harrower, Molly R. *Large scale Rorschach Techniques* (2nd ed.) Springfield, III.: Thomas, 1951.
- Hertz, Marguerite R. *Frequency tables to be used in scoring responses to the Rorschach inkblot test*. (3rd ed.) Cleveland, Ohio: Western Reserve Univ., 1946.
- Klopfer, B., Ainsworth, Mary C., Klopfer, W. G. & Holt, R. R. *Developments in the Rorschach Technique*, Vol. I. New York: World Book Co., 1954.
- Krout, J., Krout, M. H., & Dulin, T. J. Rorschach test-retest as a gauge of progress in psychotherapy. *J. clin. Psychol.*, 1952, 8, 38-384.
- Muench, G. A. An evaluation of nondirective psychotherapy by means of the Rorschach and other indices, *App. Psychol. Monogr.*, 1947, 13, 1-163.
- Munroe, R. Inspection Technique. *Rorschach Res. Exch.*, 1941, 5, 166-191.
- Murray, H. A. *Explorations in personality*. New York: Oxford Univ. Press, 1938.
- Piotrowski, Z. & Schreiber, M. Rorschach perceptanalytic measurement of personality changes during and after intensive psychoanalytically oriented psychotherapy. In G. Bychowski and J. L. Despert (Eds.) *Specialized techniques in psychotherapy*. New York: Basic Books, 1952, 337-361.
- Lord, E. Two sets of Rorschach records obtained before and after brief psychotherapy. *J. clin. Psychol.*, 1952, 14, 134-139.
- Stern, G. G., Stein, M. I., & Bloom, B. S. *Methods in personality assessment*. (rev. ed.). Glencoe: The Free Press, 1963.
- Zamansky, H. S. & Goldman, A. E. A comparison of two methods of analyzing Rorschach data in assessing therapeutic change. *J. proj. Tech.*, 1960, 24, 75-82.
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Revision received August 29, 1966

An Indicator of Suicidal Ideation on the Rorschach: A Replication

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Summary: In an attempt to replicate previous findings (Sapolsky, 1963) in which response to D 6 on Card VII of the Rorschach was found to differentiate suicidal from non-suicidal schizophrenic patients, Rorschach records of 14 suicidal and 14 non-suicidal schizophrenic patients were searched for specific response to D 6 on Card VII. Analyses by means of X^2 showed no significant differences between groups in frequency of response to this area. Response to this area was not found to be a predictor of suicidal ideation.

This study was a replication of Sapolsky's (1963) work in which he attempted to empirically validate the hypothesis that the act of suicide represents an unconscious wish to return to the womb. If this is so, then suicidally ideated people should respond to aspects of the Rorschach blots "which are potentially need satisfying," specifically to D 6 (Beck, 1961) of Card VII. Sapolsky hypothesized "that the autistically directed perceptions of the suicidally ideated patients will result in greater probability of responding to the area that that of a comparable control group."

Using two samples, the first consisting of patients with various psychiatric diagnoses, the second consisting of schizophrenic patients only, Sapolsky matched for age, sex, and diagnosis patients who gave a specific response to area D 6 on Card VII with control groups of patients who did not give such a response. He reported that, in both samples, significantly more patients responding to D 6 were suicidally ideated than those in the control groups.

METHOD

Rorschach records of adult schizophrenics hospitalized at Larue D. Carter Memorial Hospital during 1963-66 were examined for specific responses to D 6 on Card VII. Of 52 records, 15 contained such a response, nine those of women, six of men. This group will be referred to as Re-

sponders. Another group of records of adult schizophrenics without response to D 6 was drawn (Non-Responders). From this latter group matches were made to the Responders on age, within two years, and sex. One female (age 14 years) was dropped from the Responders group because a suitable match could not be made, leaving an N of 14 in each group. A t test (McNemar, 1962) revealed no significant differences between the groups on age ($t = .21$, $p > .80$) and total number of responses per record ($t = .66$, $p > .50$).

The medical records¹ of the patients in both groups were then searched for evidence of suicidal ideation. All patients in this analysis ($N = 18$) who were considered suicidal had been placed on suicide precautions on admission, with histories of suicidal thoughts, verbalizations and/or attempts. As in Sapolsky's work (1963), no effort was made to distinguish between gesture and attempt.

RESULTS

On the Respond — Non-Respond, Suicide—Non-Suicide Measures, analysis by means of X^2 , employing Yates (McNemar, 1962) correction for discontinuity, revealed no significant differences between Responders and Non-Responders in incidence of suicidal ideation and/or attempt ($X^2 = .013$, $p > .90$).

¹Many thanks to Mrs. Leslie Schaeffer, R.R.L. whose kind cooperation greatly facilitated this research.

Before evaluating these findings one must first know something of the present sample. As an acute, intensive treatment center, essentially serving patients suffering from their first schizophrenic break, Carter's patient population may not be a typical cross section of schizophrenic patients. In addition, the base rate of suicidal precautions for Carter patients fluctuates at any given time between 4.7% and 16% with a X of 7%. Forty-six percent of the patients in this sample were considered sufficiently serious suicide risks to be placed on precautions.

Considering, however, that the percentage (33%) of suicidal patients responding to D 6 falls below the base rate of suicide precautions for this

group, one must seriously question this response as a useful indicator of suicidal ideation. Indeed, in this study, it was not found to be a predictor.

REFERENCES

- Beck, S. J., Beck, A. G., Levitt, E. E., and Molish, H. B. *Rorschach's Test I. Basic Processes*. Grune & Stratton, New York, 1961.
- McNemar, Q. *Psychological Statistics*, John Wiley & Sons, Inc., New York, 1962.
- Sapolsky, A. An indicator of suicidal ideation on the Rorschach test. *J. proj. Tech. and pers. Assess.*, 27, 1963, 332-335.
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Delay of Response and Reaction to Color on the Rorschach¹

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Summary: The study considered the process of responding to inkblots in terms of psychological functions embedded in the framework of psychoanalytic ego psychology. It was an attempt to relate a perceptual process to a personality variable, and thus make meaningful certain perceptual differences in terms of more general principles of ego controls. It examined the relationships between delay of response in problem solving and ability to integrate color and form on a perceptual task. The problem-solving task comprised 25 geometric figures, which had to be recognized in the form they would appear in a mirror. The perceptual task consisted of 15 chromatic D areas of the Rorschach, which were particularly evocative of FC, CF, and C responses. It was found that Ss characterized by ability to delay response in problem-solving gave more FC responses, while those unable to exercise delay gave more CF and C.

Problems relating to the delay of response have assumed increasing clinical importance as part of a general shift in clinical orientation under the impact of recent developments in psychoanalytic theory. The focus of clinical interest now is not so much the study of instinctual forces as it is the diverse modes of reaction to them. This shift of interest from impulse to defense represents the core of what is now called "ego psychology". Fenichel (1945) states in this connection:

Stimuli from the outside world or from the body initiate a state of tension that seeks for motor or secretory discharge, bringing about relaxation. However, between stimulus and discharge, forces are at work opposing the discharge tendency. The study of these inhibiting forces, their origin and their effect on the discharge tendency, is the immediate subject of psychology. Without these counterforces there would be... only reflexes (p. 11).

It is with the study of the relative presence or absence of these "inhibiting forces" — delay of response — that this study is concerned. In this investigation an attempt was made to examine the relationship between delay of response in problem-solving and ability to integrate color and form on a perceptual task.

Misch (1954) hypothesized that as the organism comes increasingly to inhibit direct motoric gratification of impulses, there develops an increasing displacement of action from the motoric to the ideational sphere. As a test of this general hypothesis, he compared the Rorschach responses of two groups of subjects: (1) a motoric group consisting of chronically assaultive criminals; and (2) a verbal group, consisting of psychiatric patients who had a history of threatening to assault, but who had never in fact carried these threats into action. The results were consistent with the hypothesis when the Rorschach responses of the two groups were analyzed in terms of developmental level, using an index of integrative perceptual activity, and in terms of displacement to the ideational sphere, using the M score. Verrill (1958) attempted to differentiate impulsive people from the non-impulsive by using the Rorschach, the Porteus Maze, the Insight Test, the IM Test, and Murray's Impulsion-Deliberation Questionnaire. The criterion measures used for impulsivity were quickness and inappropriateness of verbal response, as rated by five judges on a scale specially prepared for the purpose. Of the 31 measures derived from the various tests, 23 differentiated the "impulsive" and "deliberate"

¹ Based on the doctoral dissertation for Boston University.

groups at the .05 or better level of confidence. Of the eight Rorschach factors which significantly differentiated the groups, four involved the use of color responses.

An earlier study by Williams (1947) was the pioneer in the field. It was designed to investigate the predictive value of $F+\%$ and form-color integration on the Rorschach as indices of control. He administered the Rorschach to 25 Ss, and had them practice the Digit Symbol subtest of the Wechsler-Bellevue Scale, establishing a basal performance level under optimal conditions. The final step consisted in performance on the Digit Symbol test under stressful conditions, such as physical discomfort, noise, disapproval, etc. The decrement in performance was successfully predicted on the basis of $F+\%$ and form-color integration.

Baker and Harris (1949) studied the FC : CF ratio and $F+\%$ of the Rorschach as indices of control. They produced stress by laboratory methods and measured loss of control in terms of loss of coordination in speech as indicated by word intelligibility and intensity variation. A correlation coefficient of .45 was found for FC : CF and one of .41 for $F+\%$.

While some of the studies have been successful in prediction from test performance to other areas of behavior, the results of other studies have been challenged. For instance, Eriksen and Lazarus (1952), following Williams (1947), attempted to predict performance under stress from a number of personality measures including the Rorschach. Subjects were given the Digit Symbol subtest of the Wechsler and the Group Rorschach Test. The Digit Symbol test was re-administered, but this time the Ss were informed that they had failed in the first testing. The decrement in performance in the failure-stress situation was not related to any of the Rorschach variables. Commenting about the earlier study by Williams

(1947), they stated: "The discrepancy between our study and Williams' study might be accounted for in terms of sampling variability . . . or difference in the type of stress situation" (p. 283). Carlson and Lazarus (1953) undertook to repeat Williams' study, this time paying careful attention to every essential detail. Again, however, they found no relationship between the Rorschach measures and decrement in performance under stress.

While the experimental studies given above have touched upon the concept of response delay in a rather direct manner, the genetic studies given below are only indirectly linked with delay of response. As it has been observed that with increase in age the ability to delay response increases and the reaction to color decreases, an inverse relationship between the two is considered likely. Rabin and Beck (1950) compared the Rorschach color responses of 131 children of various ages and concluded: "A constant decline in the use of pure color as a determinant is readily evident . . . This representation of primitive affect shows a drop in its frequency of occurrence from childhood to adolescence. The CF factor, with some fluctuations, shows a similar drop" (p. 597). Other investigations, among them Klopfer & Margulies (1941), Ford (1946), Ames, Learned, & Walker (1952), have also found that in the Rorschach records of very young children, pure C responses tend to predominate; in somewhat older children CF responses occupy a more important role and the pure C responses drop out rapidly; and at a still later age FC responses play an increasing part.

Regarding the interpretation of color on the Rorschach, there seems to be a fair degree of agreement among the experts, and the hypothesis of the present study would be consistent with the color-response interpretations provided by Hermann Rorschach (1942), Klopfer, Ainsworth, Klopfer, & Holt (1954), and Beck

(1949). However, it fits most neatly in the framework provided by Rapaport (1946). He states that the process of responding to the unstructured inkblots begins with vague perceptual experiences, which then set off associative processes. An associative process takes as its starting point some salient feature of the vague perceptual impression of an inkblot, and mobilizes such memory material as shows some congruence with the percept. The associative process terminates when it arrives at an idea whose corresponding image is sufficiently congruous with the perceptual impression of the inkblot (Rapaport, 1946, Pp. 92-93). According to Rapaport, the *pure color response* (C) comes about when there is a "short-circuiting" of the associative process so that it does not reach any definite content, and instead produces as a response a content which shows only a very slight conceptual distance from the concrete color impression. Thus, the pure color responses represent an absence of the delay which would have allowed for a further development of associations and their integration with other qualities of the blot. The *color-form response* (CF) comes about when there has been more delay possible than that found for the pure color responses. Yet the form aspects of the area chosen are barely integrated with the color-impressions in the course of the associative process. The weakness of the form element in the color-form (CF) response indicates the insufficiency of whatever delay is achieved, and gives this response an impulsive character — though a complete abandonment of control or delay, as in the pure C response, is not indicated. The *form-color response* (FC) requires the greatest delay of all the color responses, as it represents a successful integration of the form and color impressions (Rapaport, 1946, Pp. 235-242).

If delay of response is the crucial variable differentiating between the various modes of handling color men-

tioned above, we should expect that people who are characterized by delay of response in problem-solving would tend to give FC responses rather than CF & C, while those who fail to exercise response delay would tend to give CF & C rather than FC.

On first impression one tends to translate the concept of delay of response into a simple measure of reaction time, forgetting that efficient people are usually both accurate and fast on most problem-solving tasks. The mere fact that an individual reacts faster than others does not mean that he has failed to delay his response. If he is correct in his answer, it means he has exercised all the delay that is necessary for him. The concept of delay of responses necessarily involves considering the accuracy of responses along with the speed of response. Therefore, the hypothesis of the present study, concerned with the concept of delay of response, would make simultaneous use of two measures: (a) speed of response, and (b) accuracy.

The Research Hypothesis. The study is designed to test the hypothesis that people characterized by inability to delay response on a problem-solving task would, in a perceptual task like the Rorschach, be less capable of integrating the color of a stimulus with its form properties, as compared to those who are characterized by delay of response.

METHOD

Since delay of response for the purposes of this study was defined in terms of speed of response and accuracy of response, a problem-solving task was needed which could act as a measure of both. An essential requirement of this problem-solving task was that the speed of response to it could make an appreciable difference in the accuracy of response, so as to differentiate people who respond quickly and make errors from those who are able to delay their response and make fewer errors. Since none of the avail-

able problem-solving tasks was judged to be suitable for this purpose, the present investigator devised one.

It was necessary to administer the problem-solving task to a relatively homogeneous and large group of people under two different conditions: first, when speed of response was experimentally controlled; second, when ample time was provided and the Ss were encouraged to take as much or as little time as they liked. Differential increase in accuracy on the second administration was then expected to be at least partly a function of the different amounts of time spent. The Ss taking more time and showing greater improvement in accuracy would provide the response delay group, and those taking less time and showing lesser improvement in accuracy, the opposite group, failing to delay response. A modified form of the Rorschach was used as the perceptual task in order to increase the number of color responses per individual and thus provide a better comparison of people on their ability to achieve color-form integration.

Given below is a description of the problem-solving task and the perceptual task, followed by an account of the method adopted in this study.

Problem-Solving Task

The problem-solving task devised by the investigator is called the Mirror Task. This task consists of 25 figures, mostly of geometric or alphabet-like shape, which have to be recognized in the form they would appear in a mirror placed at the top edge of the figure. Each of the problem figures is presented along with four similar figures, one of which correctly represents the mirror image of the problem figure.

The principle involved in the solution of these problems is a fairly simple one: while the image of a figure in a mirror is reversed in vertical (up-down) dimension, there is no change in horizontal (left-right) dimension. However, this principle is somewhat

difficult to apply in the case of complex figures and a correct solution often requires some delay of response. As the task provides fairly novel problem-solving situations and most people lack previous training or experience in similar problem situations, a S is generally left in a state of uncertainty with regard to the correctness of his answers. This provides a greater chance for individual differences in delay of response to emerge. Moreover, on this task, speed of response can often make an appreciable difference in accuracy of response, so that people who tend to react quickly are apt to make many errors. These features of the Mirror Task rendered it particularly suitable for the purpose of this study.

The Mirror Task can be administered in two different forms. In the booklet form, the problem figures as well as alternative answers for each problem are given in a booklet. In the screen form, the problem figure is projected on a screen with only the answers contained in a booklet. The screen form of administration makes it possible to exercise experimental control over speed of response, as the exposure time of each problem on the screen can be regulated by the experimenter.

Perceptual Task

A modified form of the Rorschach test was used. The FC, CF and C scores on the Rorschach have generally served as measures of color-form integration, but as traditionally administered, the test yields, in the average normal adult, only two to four color responses. Comparing individuals with regard to the relative weight of FC vs. CF and C with these few responses is difficult, and a single chance error in inquiry or in scoring can be crucial. This is particularly so in a study employing only a limited number of Ss. For this study, therefore, the Rorschach administration was modified in such a way as to in-

crease the number of color responses per individual.

Fifteen chromatic D locations on the Rorschach were found, on the basis of a preliminary study, to be fruitful in eliciting FC as well as CF and C responses. These 15 locations constituted the perceptual task of this study. In the administration of the task, each card was covered by a white cardboard so as to expose only the selected location.

The task was administered twice in order to increase the number of responses per S; after the first administration of all 15 locations, the subjects were asked to go over the cards again and see something other than the original percept. Of the total 30 responses per S, it was found, on the basis of a preliminary study, that about one-third were color-determined.

The scoring method used by Rapaport (1946) was adopted for the scoring of color responses on the task. Rapaport describes the basic kinds of color response to the Rorschach as follows:

those in which the color impression is the sole determinant ("blood, because it is red"); those in which the color plays the predominant role, but where some form elements are also involved ("flames: the color of flame and these tongue-like projections"); and those in which the color contributes to the response but is contained within a definitive form response, and is only of equal or subordinate significance to the form determinant ("tomato worm: shaped like a worm and it is green"); (Pp. 224-225).

Administration of the Problem-Solving Task

The problem-solving task was administered to a number of Introductory Psychology classes, providing a total of 305 students. It was administered twice to each class in a group session under two conditions: first, when the speed of response was controlled and the variability in response time was kept minimal; second, when ample time was allowed and specific

instructions were given to take as much or as little time as desired.

In the first administration, each S was provided with a booklet, which did not contain the problem figure itself but only the alternative answers for each problem. The problem figures were projected on a screen for 12 seconds each with no lapse of time between, and the Ss were asked to check the appropriate answer within this brief time. The exposure time of 12 seconds for each item was determined by some preliminary work done with a group of similar Ss. Determination of exposure time and the process of item selection yielded the desired percentage of correct answers—between 40% and 50%. At the same time, the screen exposure of each item was judged sufficiently brief to keep the variability in response time minimal among the Ss.

With a 12-second exposure per item, the first part of this session with a 25-item-solving task took only 5 minutes. In the second part, new booklets were distributed which contained the problem figure as well as the alternative answers for each problem. The Ss were instructed:

"This time you have the same 25 problems which you did before, with the difference that the problem figure is given in the booklet itself and will not be projected on the screen. You have as much as 30 minutes to do these 25 problems. Within this time limit, you can take as much or as little time as you like, but answer each problem as you go along, without skipping any, and once you have turned the page, do not turn back. When you are through with the last problem, raise your hand to let me know that you are finished, and then place all your testing material under your seat. At this point you can leave the room if you like, but do so quietly so as not to disturb the others."

The investigator held a seating plan which marked the exact position of each student in the class. As soon as a student raised his hand, the time taken by him to complete the second part of the testing was recorded on

the plan. The size of each group was limited to 25 Ss or less to make possible accurate recording of time.

Thus, while the first administration yielded an accuracy score per S under conditions of controlled speed of response, the second administration provided an accuracy score increment or decrement as well as a differential response time under free conditions of time.

Selection of the Experimental Subjects

When the results of all the student classes in group session were available, Ss for further experimental work were selected according to the following procedure:

1. The accuracy scores on the first administration of the problem-solving task were plotted in a frequency distribution. The individuals achieving a score in the middle 50 per cent were selected as a relatively homogeneous group for further consideration, the rest (upper and lower quartiles) being discarded at this point. Ten and 13 proved to be the cutting scores, as 10 and 13 inclusive covered the middle 50 per cent of the accuracy scores on the first administration.
2. The position of each individual in this relatively homogeneous group was plotted on a graph for the time taken and the score increase he achieved on

the second administration of the task. Fifteen individuals clustering around that end of the graph which represented minimum time and least score increase were selected to constitute the experimental group manifesting lack of response delay, while 15 more individuals clustering around the other end representing maximum time and most score increase constituted the second experimental group which was able to exercise delay of response.

Administration of the Perceptual Task

The perceptual task was administered to the 30 experimental Ss constituting the delay and non-delay groups. The selected chromatic D locations of the Rorschach were exposed, one at a time, to the S, and he was asked what they looked like. As soon as he gave his first response, he was presented with the next location. After the first administration of all 15 locations, the S was asked to go over the cards once again and see something other than what he saw before.

RESULTS

Color score distributions for the experimental groups were examined. A non-parametric test was indicated since the scores did not seem to be drawn from normally distributed populations. The Mann-Whitney U test

TABLE I — Color Scores of the Two Experimental Groups on the Perceptual Task

| Subject | Delay Group | | | Subject | Non-Delay Group | | |
|---------|-------------|----|---|---------|-----------------|----|---|
| | FC | CF | C | | FC | CF | C |
| 1. | 5 | 1 | 0 | 16. | 4 | 7 | 1 |
| 2. | 10 | 4 | 0 | 17. | 4 | 6 | 0 |
| 3. | 5 | 5 | 0 | 18. | 5 | 12 | 0 |
| 4. | 9 | 2 | 0 | 19. | 3 | 9 | 3 |
| 5. | 4 | 8 | 0 | 20. | 6 | 7 | 1 |
| 6. | 8 | 9 | 0 | 21. | 4 | 8 | 0 |
| 7. | 9 | 3 | 0 | 22. | 7 | 10 | 0 |
| 8. | 10 | 2 | 0 | 23. | 8 | 9 | 1 |
| 9. | 7 | 4 | 0 | 24. | 6 | 9 | 3 |
| 10. | 9 | 5 | 0 | 25. | 4 | 4 | 0 |
| 11. | 3 | 1 | 0 | 26. | 5 | 3 | 1 |
| 12. | 11 | 6 | 0 | 27. | 3 | 7 | 2 |
| 13. | 5 | 3 | 0 | 28. | 3 | 4 | 1 |
| 14. | 5 | 3 | 0 | 29. | 6 | 4 | 2 |
| 15. | 6 | 2 | 0 | 30. | 3 | 9 | 0 |

was selected for the comparison of FC and CF scores because this study employed two independent samples, used small samples, and used measurement which was at least in an ordinal scale. The Fisher Exact Probability test was chosen for the analysis of C scores, since C score did not appear in any Ss of one group and in six Ss of the second group, and this measure was best seen as a dichotomous one, characterized by presence or absence of C.

The experimental group able to exercise response delay scored more FCs, less CFs, and less Cs as compared to the experimental group manifesting lack of response delay. The FC difference was significant at the 1 per cent level, the CF difference at the .001 level, and the C difference at the .0003 level.

DISCUSSION

Theoretical attempts which relate perceptual processes to personality variables, and thus make meaningful individual differences in perception in terms of more general principles of ego controls show considerable promise. When perception is viewed in terms of ego controls, it can be a convenient wedge into the larger problem of personality organization. Experimental attempts can be made to delineate the personality determinants of individual differences in perceiving. As a result of such experimental attempts, seemingly diverse behavior reactions will begin to assume an ordered, unified character.

In the present investigation, a relationship was demonstrated to exist between delay of response in problem-solving and color-form integration on a perceptual task. Looked at from a phenotypical point of view, this relationship shows no unity; however, seen in terms of response delay and associative processes, performance on a problem-solving task and reaction to color on a perceptual task could both be conceived as alternative manifestations of one and the same principle. It is a long step to predict from delay

of response in problem-solving to color-form integration on a perceptual task. The specific formulations as well as the larger theory, which made it possible to predict and understand such a relationship, receive support from this study.

Since this study dealt with a single variable — the color response — of the Rorschach performance, its results are relevant for the discussion of a methodological question which relates to the clinician's criticism of single-variable validation studies of the Rorschach. Typical of such criticism is the following comment by Sargent (1945): "... factors taken out of context have little meaning, for the reason that it is not the absolute amount of one determinant but its relation to the whole pattern which gives its significance in the individual protocol" (p. 275). The results of the present study support the contention that in an approach to Rorschach validation it is feasible to test one interpretive hypothesis at a time.

REFERENCES

- Ames, Louise B., Learned, Janet, & Walker, R. N. *Child Rorschach responses*. New York: Paul B. Hoeber, 1952.
- Baker, L. M., & Harris, J. S. The validation of Rorschach test results against laboratory behavior. *J. Clin. Psychol.*, 1949, 5, 161-164.
- Beck, S. J. Rorschach's test. Vol. II. *A variety of personality pictures*. New York: Grune & Stratton, 1949.
- Carlson, V. R., & Lazarus, R. S. A repetition of Meyer Williams' study of intellectual control under stress and associated Rorschach factors. *J. consult. Psychol.*, 1953, 17, 247-263.
- Eriksen, C. W., Lazarus, R. S., & Strange, J. R. Psychological stress and its personality correlates. II: The Rorschach test and other personality measures. *J. Pers.*, 1952, 20, 277-286.
- Fenichel, O. *The psychoanalytic theory of neurosis*. New York: Norton, 1945.
- Ford, Mary. *The application of the Rorschach test to young children*. Minneapolis: Univ. of Minn. Press, 1946.
- Gill, H. S. Delay of response in problem solving and color response to Rorschach stimuli. Ann Arbor: University Microfilms, No. 61-3368.
- Klopfer, B., & Margulies, H. A. Rorschach

- reactions in early childhood. *Rorschach Res. Exch.*, 1941, 5, 1-23.
- Klopfer, B., Ainsworth, Mary D., Klopfer, W. G., & Holt, R. R. *Developments in the Rorschach technique*. Vol. 1. *Technique and theory*. Yonkers-on-Hudson, N. Y.: World Books, 1954.
- Misch, R. C. The relationship of motoric inhibition to developmental level and ideational functioning: an analysis by means of the Rorschach test. Unpublished doctoral dissertation, Clark Univ., 1954.
- Rabin, A. I., & Beck, S. J. Genetic aspects of some Rorschach factors. *Amer. J. Orthopsychiat.*, 1950, 20, 595-599.
- Rapaport, D. *Diagnostic psychological testing*. Vol. II. Chicago: Year Book Publishers, 1946.
- Rorschach, H. *Psychodiagnostics* (Transl. by P. Lemkau & B. Kronenberg). New York: Grune & Stratton, 1942.
- Sargent, Helen. Projective methods: their origins, theory and application in personality research. *Psychol. Bull.*, 1945, 42, 257-293.
- Verrill, B. V. An investigation of the concept of impulsivity. Unpublished doctoral dissertation, Univ. of Houston, 1958.
- Williams, M. An experimental study of intellectual control under stress and associated Rorschach factors. *J. consult. Psychol.*, 1947, 11, 21-29.
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Received April 25, 1966

Revision received July 21, 1966

Examiner Influence on the Holtzman Inkblot Technique¹

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Summary: The study investigated the *E* influence upon *Ss*' protocols of the Holtzman Inkblot Technique (HIT). Ninety *Ss* were divided into 3 groups; each differing in degrees of "warmness" or "coldness" of the *E*'s attitude. Significant differences were found for 7 of the 21 scoring categories on the HIT, plus an additional category of word productivity. The warm attitude adopted by the *E* resulted in the most productive protocols, followed by the neutral and cold attitudes.

A questionnaire was administered to the *Ss* to see if their conscious perception of the *E*'s attitude coincided with the type of administration. The results showed that the *Ss* perceived the *E*'s attitude in the intended direction.

The HIT was developed to overcome some of the major weaknesses of the Rorschach test, such as lack of agreement in scoring, understandardized inquiry, and difficulty of interpretation due to variations in the number of responses (Holtzman, Thorpe, Swartz, & Herron, 1961). However, one factor that tends to limit the objectivity of the HIT as well as other projective tests is the effect of the examiner's personality and behaviour upon the subject's responses. During the past 15 years, a number of studies have stimulated interest in the problem of examiner influence on projective test responses. Masling (1960) and Kintz, Delprato, Mettee, Persons, & Schappe (1965) have summarized the work with the Rorschach, but no published research has been done with the HIT in this particular area.

The influence that different examiners have on subject's responses to the Rorschach has been examined by Lord (1950), Sanders & Cleveland (1953), Baughman (1951), Gibby (1952), and Gibby, Miller, and Walker (1953). The results showed an interaction between the examiner's per-

sonality and the type of protocol obtained from the subject. Wickes (1956), Gross (1959), Magnussen (1960), and Masling (1965) found that verbal and nonverbal reinforcement cues could significantly increase the number of responses.

The influence of "set" upon the subject's protocols was examined by Hutt (1950), Abramson (1951), and Simkins (1960). Their results showed that there was a significant increase in the response area designated.

The purpose of the study was to investigate 21 response categories of the HIT plus word productivity (the average number of words per inkblot) under three different conditions of administration. The three conditions differed in terms of the "warmness" or "coldness" of the examiner's attitude. It was hypothesized that there are significant differences in the response categories between the three conditions of administration. It was further hypothesized that the *S*'s conscious perception of the *E*'s attitude during administration coincides with the intended conditions of administration.

METHOD

Subject and Materials

The *Ss* were 45 male and 45 female voluntary undergraduate students. Using a table of random numbers, the *Ss* were assigned to one of the three groups (warm, neutral, or cold) in the order they appeared at the clinic.

¹ We wish to thank E. J. Asher for his help with the statistical design and also H. W. VonHolt and D. O. Lyon for their creative suggestions. We would also like to thank Mary E. Wibalda for typing the many drafts of this study.

² Now at Duke University, Student Counseling Center.

There were 15 males and 15 females in each group. None of the Ss had had prior exposure to the HIT. The E had never had any previous contact with the Ss.

The HIT consists of two forms of 45 inkblots each with 22³ scorable variables for each response, the S giving only one response per inkblot. Form A was used in the present study. In addition, a questionnaire of 26

two-choice items was designed to measure the S's feelings during the test in order to determine if the Ss perceived the E's attitude in the expected direction. The 26 questions were constructed from six basic concepts: anxiety, hostility, rejection, indifference, friendliness and acceptance. The answers to the questionnaire were scored as either "warm" or "cold" responses, the score being the total number of cold responses.

QUESTIONNAIRE

To help us analyze the results of this research, you are being asked to complete this short questionnaire. The success of our research depends upon your willingness to answer the following questions as truthfully and honestly as you can. If you feel critical of the examiner, say so. The questionnaire will not be used for an evaluation of the examiner, but for an evaluation of the research project. The information you give will be anonymous; the examiner himself will not know how you have answered the questions. When you are finished, fold the questionnaire and put it into the envelope; then seal the envelope. Place the envelope with the rest of the completed questionnaires before you. The envelopes will be opened at a later date.

For each statement there are 2 possible answers, agree or disagree. Put a mark in the column which seems most appropriate for YOU. If you agree with a statement even slightly, no matter how little, then put a mark in the "agree" column. If you disagree even slightly, then put a mark in the disagree column. Be sure to answer all questions. Do NOT answer the questions on the basis of how you think the examiner should act. Answer them on the basis of how you felt in the testing situation. Go ahead and begin.

Dis-
Agree agree

1. The examiner appeared unconcerned about me as a person.....
2. The examiner appeared friendly to me.....
3. Assuming that I was slightly uncomfortable, I can say that

Dis-
Agree agree

- I was uncomfortable during the whole session.....
4. I had the feeling that the examiner refused my friendliness during the session.....
5. Near the end of the test I felt more at ease with the examiner.....
6. The examiner gave me his support throughout the test..
7. I could describe the atmosphere of the testing situation as being comfortable.....
8. A great deal of my anxiousness decreased as the test progressed.....
9. The examiner's attitude irritated me.....
10. I get the impression that the examiner was indifferent toward me.....
11. The examiner's attitude helped me to relax.....
12. All in all, I tended to like the examiner.....
13. I felt the same amount of uneasiness during the whole testing.....
14. The examiner understood how I felt during the test.....
15. The examiner gave me the impression that he did not care about me as a person....
16. I felt that the examiner approved of the kind of responses which I gave.....
17. I had the feeling that the examiner found fault with my behavior.....
18. The examiner was helpful....
19. I have a tendency to dislike

³ The response category Pathognomic Verbalization was not investigated.

Dis-
Agree agree

- the examiner's approach.....
20. The examiner's attitude appeared cold to me.....
 21. I believed that I received encouragement from the examiner.....
 22. The examiner's attitude made me a little nervous.....
 23. It seemed to me that the examiner expected too much.....
 24. The examiner gave me the feeling that I was more than just another student.....
 25. I see the examiner as a person who is rather 'neutral' in his feelings toward me.....
 26. The examiner seemed to be too business like in his approach.....

Procedure

One *E* tested all *Ss* with the HIT. The following instructions were read in each group:

"I have here a set of inkblots which were made by dropping ink on paper and folding it. I'd like you to look at each inkblot and tell me what it might look like, what it might represent, or what it could be. Since these are only inkblots, there are no right or wrong answers and each blot looks like different things to different people. It's possible for a person to see several things in each inkblot, but I want you to give me only ONE response for each card. After you see something and tell me about it, I'll ask you some questions about it because I want to see it in the same way you do. I'll be writing down what you say and making note of the time, but you may take as long as you wish on each card. Do you have any questions?"

At the end of the HIT administration, each *S* completed the questionnaire described above.

Group I: Warm Attitude. In order to establish "rapport," a conversation of approximately three minutes was initiated by the *E*, who asked the same questions of each *S*. After three minutes of conversation, the administration began. As the *E* handed the card to the *S*, he looked at the *S* and made a comment such as, "Here's the first

one" or "Here you are." Comments were continued in this manner for every odd-numbered card. After the *S* verbalized his response, the *E* said "good," "fine," or "all right" for every odd-numbered response (unless the *S* rejected the card). The *S* and *E* sat side-by-side at the same desk. Immediately following the free association phase to each card, the standard inquiry was conducted.

Group II: Neutral Attitude. Instead of the *E* asking questions, as in Group I, the *E* explained that the HIT was a "new" test and because of this, studies were being conducted with it. The *S* was also told that the experiment was a study in group differences and that his responses would remain anonymous. The test instructions were then read. When the *E* handed the card to the *S*, he looked at him, but made no comment. When the *S* gave his response, the *E* said, "uh-huh" with every odd-numbered response. The *S* and the *E* were facing each other at the corner of the table.

Group III: Cold Attitude. When the *S* arrived, the *E* met him, but did not look him in the eye nor did he introduce himself. His only comment was "Come in." The identifying information was gathered and the test instructions were read. When the *E* handed the card to the *S*, he made no comment and did not look at the *S*. When the *S* gave his response, there was no comment forthcoming. The *S* was seated opposite the *E*. At no time during this administration did the *E* look directly at the *S*. If any questions were asked by the *S*, he was either ignored, if at all possible, or told to save his questions until after the test.

There were four variables which were altered in each group: the introductory talk, looking at the *S* including a comment, comment or no comment after the response, and the seating arrangement.

RESULTS

A two-by-three analysis of variance was employed to test group differ-

TABLE I—Analysis of Variance for Six HIT Response Categories

| Variable | Groups ^a df=2/84 | F Ratios Sex df=1/84 | Interaction df=2/84 |
|---------------------------|--------------------------------|----------------------------|------------------------|
| | | | |
| FD (Form Definiteness) | 15.34** | 0.92 | 1.89 |
| FA (Form Appropriateness) | 3.89* | 0.53 | 0.48 |
| M (Movement) | 6.19** | 0.09 | 0.25 |
| I (Integration) | 15.87** | 1.15 | 0.10 |
| H (Human) | 7.55** | 0.15 | 0.56 |
| WP (Word Productivity) | 53.47** | 0.37 | 1.30 |

Note-Group N=30, Sex N=15 males and 15 females.

*p is less than .05

**p is less than .01

^aDirection of differences: Warm > Neutral > Cold

ences, sex differences, and interaction on 15 of the 22 scoring categories which had normal distribution. Six of the 15 response categories were significant and the results are presented in Table I. Strong trends (p less than .10) were also obtained on four of the response categories: Animal (A), Barrier (Br), Penetration (Pn), and Popular (P).

TABLE II—Intergroup Comparison of Six HIT Response Categories by the Newman-Keuls Method

| Variable | ^a r statistic | | |
|----------|--------------------------|--------------|--------------|
| | Warm-Cold | Cold-Neutral | Neutral-Warm |
| FD | 7.45** | 1.98 | 5.79** |
| FA | 3.61* | 2.58 | 1.27 |
| M | 4.97** | 2.51 | 1.27 |
| I | 7.86** | 2.69 | 3.86** |
| H | 5.04** | 0.04 | 5.06** |
| WP | 14.41** | 4.35** | 10.20** |

Note-Group N=30, df=2/84

*p is less than .05

**p is less than .01

The Newman-Keuls method was then applied to the F ratios of the groups to establish which pairs of group means differed significantly. Table II presents the intergroup comparison differences.

Seven of the 22 response categories showed truncated distributions; therefore, a Chi-square test was used for these response categories. Table III presents the results for the group comparison, sex comparison, and interaction.

Responses to the questionnaire were scored either warm or cold, so a tabulation could be made of the frequencies of the cold responses for each group. A t test analysis of group questionnaire differences is presented in Table IV.

DISCUSSION

The results showed that the examiner's behaviour significantly influenced the following eight of the 22

TABLE III—Chi-Square Analysis for Seven HIT Response Categories

| Variable | Group ^a | χ^2 values | |
|------------------|--------------------|------------------|-------------|
| | | Sex ^b | Interaction |
| R (Rejection) | 54.40** | 11.92** | 0.09 |
| S (Space) | 1.98 | 0.53 | 1.84 |
| Sh (Shading) | 3.13 | 0.18 | 2.82 |
| At (Anatomy) | 2.57 | 18.00** | 4.94 |
| Sx (Sex) | 0.62 | 27.56** | 3.26 |
| Ab (Abstraction) | 1.05 | 0.56 | 27.16** |
| B (Balance) | 12.15** | 4.00* | 1.67 |

Note-Group N=30, Sex N=15 males and 15 females.

*p is less than .05

**p is less than .01

^aDirection of differences: R, Warm < Neutral < Cold; B, Warm > Neutral > Cold.

^bDirection of differences: Males > Females.

TABLE IV—A *t* Test Analysis of Questionnaire Responses

| Groups | Males | | <i>t</i> | Females | | <i>t</i> |
|--------------|-------|-------|----------|---------|-------|----------|
| | Means | | | Means | | |
| Warm-Cold | 5.00 | 12.46 | 5.00** | 3.40 | 14.33 | 6.68** |
| Warm-Neutral | 5.00 | 9.00 | 3.53** | 3.40 | 7.20 | 3.18** |
| Neutral-Cold | 9.00 | 12.46 | 2.15* | 7.20 | 14.33 | 3.82** |

Note—Group *N*=30, Sex *N*=15 males and 15 females.

**p* is less than .05

***p* is less than .01

response categories of the HIT: FD, FA, M, I, H, WP, B, and R. A comparison of the response categories of the warm and cold groups showed a more significant difference than the comparison of the neutral and warm groups or the neutral and cold groups.

The effect of the warm administration, which was structured to produce a testing situation of relative relaxation and acceptance, was seen in the greater overall productivity in the *S*'s protocols when compared to those of the *S*'s in the neutral or cold group administrations. The higher values of FD, FA, M, I, H, WP, and B in the warm group may be regarded as showing an interest on the subjects' part to be productive, to use his intellectual capacity and imagination, (Klopfer and Davidson, 1962) and, at the same time, his willingness to please the examiner, since the *E* is asking for the *S*'s cooperation in making responses.

The effect of the cold administration, which was structured to produce a testing situation void of any friendliness or encouragement, was seen in less productivity in most scoring categories. The number of R (rejections) was higher and the WP was lower, which was indicative of low intellectual effort and limited use of creative imagination. The high trend (*p* less than .10) in Popular (P) suggests that the subjects were responding in a stereotyped manner. Anxiety (Ax) and Hostility were also higher, but the difference did not reach a level of acceptable significance.

The effect of the neutral administration, which was structured to produce a business-like approach to the testing situation, yielded results that,

for the most part, were between the productivity of the warm and the cold groups.

The reader may question whether the differences in the response categories were due solely to an increase in productivity of the warm group. Productivity would not affect FD and FA since they are calculated by interpolation, on the basis of the number of Rejections. Finally, the Popular category had a greater value (*p* less than .10) in the cold group. Thus, evidence would suggest that it was not only the productivity which produced the differences.

Next, the authors investigated how the subjects perceived the examiner's attitude. A questionnaire administered to the subjects who took the HIT showed that the subjects did perceive the examiner's attitude in the predicted direction. This finding would support the hypothesis that the differences in the response categories were due to the treatment effect.

It would seem only natural that the sensitivity of the HIT would reflect the *E*'s attitude in the *S*'s protocol. It is this very sensitivity which makes the HIT useful as a clinical instrument. But its usefulness depends upon the examiner's awareness of his own behaviour in the testing situation. Because of the plausibility of the three group conditions already described, as attitudes which could be demonstrated by an examiner, and because of the large variation observed in several different response categories, it is important that the examiner be aware of his behaviour. Otherwise he will not realize how he can and does in-

fluence the subject's responses on the test.

One difficulty in drawing generalizations from this study is that only one examiner was used; and, as McGuigan (1963) notes, generalizations from one experimenter to a population of experimenters must be done exceedingly cautiously, if at all.

REFERENCES

- Abramson, L. S., The influence of set for area on the Rorschach test results. *J. consult. Psychol.*, 1951, 15, 337-342.
- Baughman, E. E., Rorschach scores as a function of examiner difference. *J. proj. Tech.*, 1951, 15, 243-249.
- Gibby, R. G., Examiner influence on the Rorschach inquiry. *J. consult. Psychol.*, 1952, 16, 449-455.
- Gibby, R. G., Miller, D. R., & Walker, E. L., The examiner's influence on the Rorschach protocol. *J. consult. Psychol.*, 1953, 17, 425-428.
- Gross, L. R., Effects of verbal and nonverbal reinforcement on the Rorschach. *J. consult. Psychol.*, 1959, 23, 66-68.
- Holtzman, W. H., Thorpe, J. S., Swartz, F. D., & Herron, E. W., *Inkblot Perception and Personality: Holtzman Inkblot Technique*. Austin: University of Texas Press, 1961.
- Hutt, M. L., Gibby, R., Milton, E. O., & Pottharst, K., The effect of varied experimental "sets" upon Rorschach test performance. *J. proj. Tech.*, 1950, 14, 181-187.
- Kintz, B. L., Delprato, D. J., Mettee, D. R., Persons, C. E., & Schappe, R. H., The experimenter effect. *Psychol. Bull.*, 1965, 63, 223-232.
- Klopfer, B., & Davidson, Helen, *The Rorschach Technique: An Introductory Manual*. New York: Harcourt, Brace & World, Inc., 1962.
- Lord, E., Experimentally induced variations in Rorschach performance. *Psychol. Monog.*, 1950, 64, (10, Whole No. 316).
- Magnussen, M. G., Verbal and nonverbal reinforcers in the Rorschach situation. *J. clin. Psychol.*, 1960, 16, 167-169.
- Masling, J., The influence of situational and interpersonal variables in projective testing. *Psychol. Bull.*, 1960, 57, 65-85.
- Masling, J., Differential indoctrination of examiners and Rorschach responses. *J. consult. Psychol.*, 1965, 29, 198-201.
- McGuigan, F. J., The experimenter: A neglected stimulus object. *Psychol. Bull.*, 1963, 60, 421-428.
- Sanders, R., & Cleveland, S. E., The relation between certain experimenter personality variables and subjects' Rorschach scores. *J. proj. Tech.*, 1953, 17, 34-50.
- Simkins, L., Examiner reinforcement and situational variables in a projective testing situation. *J. Consult. Psychol.*, 1960, 24, 451-457.
- Wickes, T. H., Examiner influence in a testing situation. *J. consult. Psychol.*, 1956, 20, 23-26.

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Received January 31, 1966

Revision received July 30, 1966

An Investigation of Certain Cognitive Aspects of Schizophrenia

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Summary: This study investigated some cognitive aspects of schizophrenia. Certain inkblot test scales, used to measure these characteristics, differentiated schizophrenics from nonschizophrenics and were related to ratings of thought-disorder and of poor reality-testing. *Impossible*, *Abstract*, and *Combining Realms Arbitrarily* were the best of these measures. Specific cognitive attributes of schizophrenia found in this study were: 1) preoccupation with abstract ideas, the supernatural and symbols and 2) broken boundaries of the body-image, between fact and fantasy, and between different levels of abstraction. However, the schizophrenics showed no impairment of impersonal, nonverbal abstract thinking. A positive relation was found between broken body-image boundaries and broken cognitive boundaries, the latter involving the inability to make essential cognitive and conceptual distinctions. The results support Hozier's contention that "the breakdown of the sense of reality involves a breakdown of the bodily self" (Hozier, 1959).

The purpose of this research¹ was to investigate, by means of psychological tests and psychiatric interview ratings, the relationship between certain general and certain specific cognitive characteristics of schizophrenia. The general attributes were poor reality-testing and thought disorder. The specific characteristics were:

1. Preoccupation with a) abstract ideas, b) the super-natural, c) the past, d) symbols, e) one's self, and

2. Broken boundaries a) of the body-image (lack of boundaries between external and internal aspects of the body-image), b) between fact and fantasy (autistic thinking), c) between separate concepts (contamination) and d) between different levels or realms of abstraction (fusion and confusion of the concrete and the abstract, or of the animate and the inanimate).

Another aim of the research was to investigate the validity of nine inkblot scales as test indicators of schizophrenia, poor reality-testing and thought-disorder. These inkblot scales were used to measure the aforementioned general and specific cognitive charac-

teristics of schizophrenia. An additional purpose of the study was to aid in the accurate diagnosis of schizophrenia by means of psychological tests, and to clarify some characteristics of schizophrenic thinking.

Sternbach claimed² that schizophrenics are more inclined to be emotionally involved with abstract ideas (e.g., good vs. evil) than are nonschizophrenics who tend to be concerned with concrete things (e.g., wife, money, job).

Preoccupation with the supernatural was explored to see if it was related to poor reality-testing, thought disorder and autistic thinking. The rationale was that preoccupation with the supernatural seems related to unrealistic and magical thinking; in the supernatural realm, the usual laws of logic and reality are suspended, and magic and miracles abound.

Preoccupation with the past was investigated since it seemed related to regressive trends. In line with Freud, Fenichel claimed: "the schizophrenic has regressed to narcissism" (Fenichel, 1945). Preoccupation with oneself, which is an aspect of narcissism, was also evaluated.

Some schizophrenics are preoccupied

¹ Thanks are due to Dr. Meta Steiner for her aid in collecting the data, to Dr. Norbert Freedman for his advice in writing this article, and to Dr. Noble Endicott who initiated and sponsored the larger research, of which the present one was just a part.

²Dr. Oscar Sternbach expressed this view when he taught a course at the National Psychological Association for Psychoanalysis.

with symbols, seeing things and people as symbols. Of one such patient, not used as a subject, the case history stated:

Everything he reads . . . is a symbol, an omen of good or bad. . . . His son was a symbol of something else. Everything his son would say, the patient would say has a meaning and he had to decipher it, even when the son would babble gibberish. Whenever the patient would see anything red . . . , he would say that this is the message sent to him by the communists. Anything in green, like green grass, stood for death.

In regard to body-image, also investigated in this study, Fenichel wrote:

Freud stated that . . . the 'body image' is the nucleus of the ego With the regressive alteration of the ego, this nucleus is altered (Fenichel, 1945).

Hozier studied the body-image of schizophrenics and found:

. . . significant disturbances in spatial perception in reference to the body and . . . to the body and the world This breakdown in spatial relations and organization is . . . an indicator of the breakdown of the bodily self (Hozier, 1959).

Hozier used human figures and figure-drawings, but Schafer claimed that body-image may be evaluated also by means of inkblot tests (Schafer, 1960).

Schizophrenic thinking involves a breakdown of limits and distinctions of various kinds. These distinctions are presumably necessary for adequate reality testing and for realistic, logical thought. Autistic thinking, a generally recognized symptom of schizophrenia, is defined by Coville *et al.* as:

Disorder in the process of thinking which involves the failure to maintain the boundary between fact and fantasy (Coville, Costello, & Rouke, 1960).

Fenichel wrote similarly of schizophrenic thinking:

Its concrete images do not correspond to objective realities, but are formed or influenced by the wish-fulfilling magical qualities of primitive thinking (Fenichel, 1945).

Another type of breakdown of limits, found in schizophrenics, is called "contamination." This is the

combining of two separate things into a new thing (e.g., combining separate words or combining separate percepts) (Hinsie & Campbell, 1960). In line with this, Cameron characterized the talk of disorganized schizophrenics as inter-penetrative and overinclusive (Cameron, 1944 pp. 861-921).

The fusion of different levels of abstraction, e.g., fusion and confusion of the concrete and the abstract, is another breakdown of limits. The present research investigated the aforementioned cognitive aspects and, also, whether or not schizophrenic thinking is related to broken body-image boundaries and to broken conceptual and perceptual boundaries.

Hypotheses

The hypotheses were that most or all of the nine inkblot scales would differentiate the schizophrenics from the non-schizophrenics (in that the former would get higher scores), and would correlate positively with ratings of thought-disorder and of poor reality-testing. A fourth hypothesis was that the Possible Schizophrenic group's mean scores, on most or all of these scales, would fall between those of the two other groups.

METHOD

The Holtzman Inkblot Technique, Form A, and a psychiatric interview rating scale³ were used in this study. There were nine inkblot and two interview measures. Six of the nine scales were invented by the author; three (Abstract, Self-Reference and Contamination) were taken from the literature.⁴ The two interview measures were Poor Reality-Testing and Disturbances in Thought Processes. These measures are described in Tables I and II.

Subjects

There were three groups used in this study: schizophrenics, nonschizo-

³This was constructed by Dr. Noble Endicott.

⁴The complete scoring procedure may be obtained from the author.

phrenic, psychiatric patients, and possible schizophrenics. The Schizophrenic group consisted of 25 patients, 13 men and 12 women, between the ages of 18 and 42 years, with a mean age of 28.4 years. Fifteen of them were of the paranoid type, nine unclassified, and one mixed. Eight were acute, eleven chronic and six unspecified.

The Nonschizophrenic group consisted of 24 patients, 20 men and four women between the ages of 17 and 42 years, with a mean age of 32.4 years. Eighteen of them were diagnosed as alcoholics, three as personality disorder, two neurotic depression and one psychotic depression.

TABLE 1—Names and Brief Description of Nine Inkblot Scales

Impossible. A percept or remark involving things, animals, people or actions which do not occur in reality; e.g., "Animals climbing on clouds". On the basis of face validity, *Impossible* was used as a measure of autistic thinking.

Abstract. Abstractions, abstract content; i.e., that which cannot be seen because it is not concrete (not an animal, event, person, thing). *Abstract* includes thought, feelings, evil, God, concepts, mind, force, etc. Based on its face validity, *Abstract* was used as a measure of preoccupation with abstract ideas.

Supernatural. A percept or a remark involving a Biblical, religious or supernatural figure, animal, object or place; e.g., spirit, Hell, saint, priest, witch. *Supernatural* was used to measure preoccupation with the supernatural.

Ancient. Responses or remarks referring to people, animals, events, or things of the past, that existed more than 200 years ago; e.g., mummy, fossil, dinosaur. *Ancient* was considered a measure of preoccupation with the past.

Combining Realms Arbitrarily (CRA). a) unrealistic mixing or relating of the concrete and the abstract; e.g., "Ugly creatures battle against brightness and hope" or "The color is brown gold like because they're good men" or b) Inanimate objects doing things or having feelings, motives or wishes which, in reality, are impossible for them; e.g., "Skeletons moving about with penises erect, going to have intercourse". *CRA* was used to measure the lack of boundaries between different levels or realms of abstraction, the fusion and

The Possible Schizophrenic category consisted of 23 subjects, ten men and 13 women. In regard to 20 of these patients, there was doubt as to whether or not they were schizophrenic; the remaining three had been diagnosed as being both alcoholic and schizophrenic. The subjects ranged in age from 20 to 52 years, and had a mean age of 31.6 years.

The three groups totaled 72 patients who had been drawn from a larger group of 90. The larger group was used in computing the inter-correlations of test scores, and the correlations of test scores with interview ratings; it was also used in the factor

confusion of the concrete and the abstract or of the animate and the inanimate. This is sometimes found in puns but it is done seriously, and without awareness of the absurdity involved, by schizophrenics having a thought-disorder. One such patient said of a man in a TAT story, "He has no understanding". When asked what gave that impression, the patient replied, "he has no feet."^a

Inside and Outside (I&O). Scored for a response in which both the inside and outside of a person are seen; e.g., "King Oedipus; his insides are visible". *I&O* was used as a measure of the extent that body-image boundaries are broken down.

Self-Reference (SR). This is scored 2, 3 or 4 according to Holtzman (Holtzman et al., 1961). The more bizarre or unrealistic the self-reference, the higher the score given. *SR* was considered to measure preoccupation with one's self.

Contamination. Scored when two conflicting interpretations of the same blot area are combined, related or superimposed. *Contamination* was used as a measure of contamination, the tendency to combine separate percepts into a new and absurd one.

Symbol. Symbols (in mathematics, music, alphabet, etc.) or content that symbolizes something else; e.g., the number 4, the letter B, "a bow; symbolizes matrimony", a triangle. *Symbol* was used to measure preoccupation with symbols.

^aThis was cited by the late Dr. Ruth Munroe in a lecture at City College of New York.

analysis of Holtzman Test responses.

Procedure

In a pilot study, a comparison of a schizophrenic and a nonschizophrenic group had been made, using only five patients in each. Only those test signs were retained which differentiated the two groups in the hypothesized direction. The criterion of significance used was the .10 level.

The main research tested the validity of the aforementioned nine test signs of schizophrenia by evaluating their ability to differentiate between another schizophrenic and nonschizophrenic group. The criterion of significance here was the .05 level. All subjects had had at least six years of grammar school and had been tested within a week after admission as inpatients to the Psychiatric Treatment Research Center.

TABLE II—Brief Description of Two Interview Measures

A. *Poor Reality-Testing*. Rated on a 1 to 5 scale:

1. *Extreme*. The patient's reality-testing seems extremely impaired, grossly distorted by hallucinations, delusions or illusions. Patients without delusions or hallucinations but having an extreme degree of disorientation as to time, place or person are also given this rating.

2. *Marked*. The patient's reality-testing is markedly disturbed but not to the extent that he is hallucinating. The patient has delusions which are confined to a relatively limited area or situation. Patients with considerable but not extreme disorientation as to time, place or person are also given this rating.

3. *Moderate*. For patients whose reality-testing is moderately impaired. There are moderate distortions such as feeling cheated, discriminated against etc. when the reality situation does not warrant such conclusions.

4. *Mild*. The patient's reality-testing is mildly impaired. There are mild distortions, such as exaggerating or not recognizing faults in other people.

5. *Minimal*. For patients whose reality-testing is superior. These people distort reality to a minimal extent.

B. *Disturbances in Thought Processes*. Rated on a 1 to 5 scale:

1. *Extreme*. The patient's thought processes are extremely disturbed and disorganized. Primary process thinking predominated in his verbal productions.

2. *Marked*. The patient's thinking is markedly disturbed. His thought disorder and psychosis are clinically evident but not extreme. Primary process thinking occurs often but is not pervasive.

3. *Moderate*. Thought processes are moderately disturbed; primary process thinking occurs only occasionally. Patient's thought disorder is subtle or hidden, barely discernible on clinical examination. Borderline psychotic patients receive this rating.

4. *Mild*. Primary process thinking occurs but only in conventional ways, such as belief in good luck charms and sharing popular superstitions and prejudices. Thinking is mildly illogical or concrete.

5. *Minimal*. Logical and reality-oriented, and primary process thinking is not apparent on clinical examination.

In order to prevent the test results from affecting the diagnoses of patients used in this research, the pre-conference initial diagnosis was the criterion for classification of patients. This diagnosis was made by the psychiatrist in charge of the case, on the basis of the patient's case history and psychiatric interviews, without knowledge of test data. In order to increase the validity of the diagnoses of the subjects in the schizophrenic and nonschizophrenic groups, patients were included only if their total case history contained no conflicting opinions as to their being schizophrenic or nonschizophrenic, respectively.

The three groups were equated for age, education, race, religion, vocational background, marital status, I.Q., and number of responses to the Holtzman Test. Since the groups were not equated for sex, an evaluation was made as to whether or not there was a significant difference between male and female subjects on any of the nine inkblot scales. No difference was found between the female and male groups on any of the inkblot

scales, nor in regard to psychiatric interview ratings used in this study.

The *t* test was used to compare the mean scores of the groups on the aforementioned test scales. Pearson *r* was used to determine the relationship between scores on the inkblot scales and ratings of Poor Reality-Testing and Disturbances in Thought Processes. The criterion of significance was .05.

The data of this research were not normally distributed; they were positively skewed. Because of this, the two-tailed *t* test was used rather than the one-tailed (Edwards, 1951).

As to the validity of the ratings of Poor Reality-Testing and of Disturbances in Thought Processes, one criterion was their ability to differentiate the Schizophrenic from the Non-schizophrenic group. By inspection, it was evident that the ratings did so beyond the .01 level.

The reliability of the interview ratings was determined by measuring the degree of correlation between the independent ratings of 69 cases by the author and by a psychiatrist, Dr. Endicott. The Pearson *r* for the ratings of Disturbances in Thought Processes was .76 and of Poor Reality-Testing was .80.

The reliability of the nine inkblot scales was evaluated by measuring the degree of correlation between the independent scoring of these variables by the author and by a research assistant (Miss Abramoff). The Holtzman Test protocols of 30 cases were scored by each, and the data subjected to a Pearson *r* evaluation. The reliability coefficients for the nine scales were: Ancient .99, Supernatural .97, Self-Reference (SR) .96, Abstract .94, Impossible .93, Combining Realms Arbitrarily (CRA) .93, Symbol .90, Inside and Outside (*I&O*) .70, and Contamination .63.

RESULTS

Table III indicates that the Schizophrenics were significantly higher

than the Nonschizophrenics on six of the nine inkblot scales: Impossible, Abstract, Supernatural, CRA, *I&O*, and Symbol. There were no differences between the groups on three scales: Ancient, Contamination,⁵ and SR. The SR score was based on the sum of 2, 3 and 4 scores. When only 3 and 4 scores were used, the SR score differentiated the Schizophrenic ($M=5.2$; $S.D.=10.6$) from the Nonschizophrenic group ($M=0.4$; $S.D.=1.5$) at the .05 level ($t=2.20$). Also, it is noteworthy that the mean scores of the Possible Schizophrenics fell between those of the Schizophrenic and Nonschizophrenic groups on all nine test variables.

Seven test scales correlated positively with ratings of "Disturbances in Thought Processes": Impossible .36, *p* .01; CRA .34, *p* .01; Abstract .34, *p* .01, *I&O* .26, *p* .05; SR .26, *p* .05; Symbol .25, *p* .05; and Supernatural .24, *p* .05. Two of the signs were not correlated significantly with "Disturbances in Thought Processes": Contamination⁶ .20, *p* .10 and Ancient .18, *p* .10.

Eight test variables correlated positively with ratings of "Poor Reality-Testing": CRA .37, *p* .01; Impossible .32, *p* .01; Abstract .32, *p* .01; *I&O* .28, *p* .01; Supernatural .25, *p* .05; Ancient .22, *p* .05; SR .22, *p* .05; and Symbol .21, *p* .05. Only one of the test scales was not correlated significantly with "Poor Reality-Testing":

⁵The Schizophrenic group had a very high S.D. (4.3) relative to the mean (1.6), largely because of one patient's extremely high score (22) on Contamination. This affected the *t* test greatly. If this subject is eliminated, the mean score for the Schizophrenics declines but, paradoxically, it is now significantly higher than that of the other group! Also, a chi-square test, including this subject, was significant.

⁶The patient with the extremely high Contamination score (see footnote 5) had a rating of Marked on Disturbances in Thought Processes. If one eliminates this subject, the correlation between Contamination and ratings of this variable is then significant ($r=.34$; *p* .01) and so is the correlation between Contamination scores and Poor Reality-Testing ratings ($r=.28$; *p* .01).

TABLE III—A Comparison of the Three Research Groups on the Nine Inkblot Scales

| Scale | | Research Groups | | Possible Schizs. |
|------------|-------|-----------------|-------------|------------------|
| | | Schizs. | Non-Schizs. | |
| Impossible | M | 7.3 | 2.7 | 3.7 |
| | S.D. | 8.3 | 2.7 | |
| | t & p | 2.53; | .02* | |
| Abstract | M | 4.3 | 0.7 | 1.5 |
| | S.D. | 7.8 | 1.3 | |
| | t & p | 2.18; | .05* | |
| Supernat. | M | 4.0 | 1.8 | 2.4 |
| | S.D. | 4.8 | 2.0 | |
| | t & p | 2.04; | .05* | |
| Ancient | M | 1.8 | 0.9 | 1.0 |
| | S.D. | 2.6 | 1.1 | |
| | t & p | 1.50; | .20 | |
| CRA | M | 2.7 | 0.4 | 1.5 |
| | S.D. | 4.8 | 1.0 | |
| | t & p | 2.28; | .05* | |
| I & O | M | 0.8 | 0.04 | 0.2 |
| | S.D. | 1.2 | 0.2 | |
| | t & p | 3.04; | .01* | |
| Contam. | M | 1.6 | 0.2 | 0.1 |
| | S.D. | 4.3 | 0.6 | |
| | t & p | 1.56; | .20 | |
| Symbol | M | 1.2 | 0.3 | 0.4 |
| | S.D. | 1.4 | 0.7 | |
| | t & p | 2.81; | .01* | |
| SR | M | 6.8 | 2.2 | 3.5 |
| | S.D. | 11.0 | 3.7 | |
| | t & p | 1.94; | .10 | |

*Significant

Contamination .19, *p* .10.

An evaluation was made of the inter-correlations of the nine inkblot scales. Table IV indicates that the only scales with correlations of .70 or higher are *CRA*, Abstract, Contamination and Impossible. The scale which overlapped the most was *CRA*. It correlated .86 with Abstract, this being largely due to the fact that most responses scored *CRA* also received Abstract scores. However, many Abstract responses were *not* scored *CRA*, the latter being a rarer response. *CRA* also correlated .81 with Contamination, although responses scored *CRA* usually did not receive a Contamination score. Here the high correlation seems due to the fact that both scores involve confusion or contamination. In *CRA* there is confusion of the abstract and the concrete; in Contam-

ination there is a confusion of different percepts. It may be that mental confusion is a general symptom which manifests itself in these ways.

A factor analysis of Holtzman Test responses was made using 56 variables. The first factor was called a psychopathology factor; Holtzman's Pathognomic Verbalization (*PV*) scores, which he reported had a high loading on a factor of "psychopathology of thought processes" (Holtzman, *et al.*, 1961), loaded .84 on the factor found in the present study.

All nine test scales had significant loadings on the first factor: *CRA* .91, Abstract .89, Contamination .81, Impossible .75, Symbol .63, *SR* .61, Supernatural .50, *I & O* .47, and Ancient .36.

The significant correlations of all nine test scales with the psychopath-

TABLE IV—Inter-correlations of the Nine Inkblot Test Scales

| Scale | Imp. | Abst. | Sup. | Anc. | CRA | I&O | Con. | Symb. | SR |
|--------------|------|-------|------|------|-----|------|------|-------|------|
| Impossible | — | .69 | .64 | .40 | .77 | .69 | .73 | .49 | .37 |
| Abstract | .69 | — | .62 | .52 | .86 | .42 | .74 | .65 | .54 |
| Supernatural | .64 | .62 | — | .67 | .62 | .44 | .37 | .46 | .10* |
| Ancient | .40 | .51 | .66 | — | .41 | .20* | .33 | .30 | .15* |
| CRA | .77 | .86 | .61 | .41 | — | .54 | .81 | .63 | .56 |
| I&O | .69 | .42 | .44 | .20* | .54 | — | .50 | .33 | .14* |
| Contam. | .73 | .74 | .37 | .33 | .81 | .50 | — | .45 | .46 |
| Symbol | .49 | .64 | .46 | .30 | .63 | .33 | .45 | — | .40 |
| SR | .37 | .54 | .10* | .15* | .56 | .14* | .46 | .40 | — |

Note: All significant except those starred.

ology factor indicates that they are all measures of psychopathology. The best of these measures, based on their high loadings (.75 or higher), are *CRA*, *Abstract*, *Contamination* and *Impossible*. These scales form a cluster, in that each one correlates .69 or higher with each of the other three scales.

In order to investigate what these four scales measure in common, which differentiates them from the other five scales, each of the nine were correlated with other available tests and ratings. Table V presents the correlation of the nine scales with the Schizophrenia (*Sc*) and Paranoia (*Pa*) scales of the Minnesota Multiphasic Personality Inventory (*MMPI*), with Holtzman's *PV* scores, and with ratings of pathological suspiciousness (*Susp.*), Poor Reality-Testing and Thought-Disorder.

The data indicate that three of the four scales (*Impossible*, *Abstract* and *CRA*) consistently are better measures of mental illness than are any of the other five scales. These three correlate significantly with the *Sc* scale whereas only one of the other five scales does so. Two of the four signs correlate significantly with the *Pa* scale whereas none of the other five does. Three out of four correlate with pathological suspiciousness while only one of the five does. Three of the four scales correlate .77 or higher with *PV* whereas none of the five does. These same three scales correlate .32 or higher with ratings of Poor Reality-Testing and of Thought-Disorder whereas none of the five does. Of the

cluster of four scales, only *Contamination* generally does not correlate significantly with measures of mental illness.

Also, all four scales correlate significantly (Table IV) with a measure of broken body-image boundaries, *I&O*, whereas two of the other five scales (*SR* and *Ancient*) do not. Another finding was that the four scales all related significantly to Block Design (*WAIS*) scores whereas only one (*Symbol*) of the other five scales did so. (A comparison of the Schizophrenics and Nonschizophrenics showed no difference between them on the B.D. test). Also, the two scales measuring preoccupation with abstract ideas and symbols (*Abstract* and *Symbol*) related positively to scores on both Block Design and Digit Symbol, which are impersonal, nonverbal abstract subtests of the *WAIS*.

Lastly, an evaluation was made as to how many of the schizophrenics of this study could have been identified correctly by the use of the inkblot test scales. (It was not feasible to diagnose nonschizophrenics by means of the scales). A patient was considered schizophrenic if one or more of the nine criteria applied to him. Thus, by the use of these diagnostic signs, 21 of the 25 schizophrenics were diagnosed correctly; none of the signs applied to any of the 24 nonschizophrenic patients. The criteria were:

1. Impossible score of 11 or more.
2. Abstract score of 6 or more.
3. Supernatural score of 8 or more.
4. Ancient score of 4 or more.

TABLE V—Correlations of the Nine Inkblot Scales
With Measures of Mental Illness

| Scale | Sc | Pa | Susp. | PV | Poor R-T | Tht. Dis. |
|--------------|-------|-------|-------|-------|----------|-----------|
| Impossible | .26* | .15 | .27** | .80** | .32** | .35** |
| Abstract | .35** | .29** | .26* | .77** | .32** | .33** |
| CRA | .30** | .23* | .27** | .82** | .37** | .34** |
| Contam. | .17 | .12 | .15 | .64** | .19 | .20 |
| Supernatural | .26* | .12 | .20 | .58** | .25* | .24* |
| I&O | .16 | .12 | .24* | .66** | .28** | .26* |
| Symbol | .14 | .14 | .15 | .64** | .21* | .25* |
| SR | .17 | .16 | .11 | .57** | .22* | .26* |
| Ancient | .09 | .01 | .15 | .39** | .22* | .18 |

*Significant at .05 level

**Significant at .01 level

5. Score of 1 or more on *I&O* and on Contamination, each.
6. Score of 1 or more on Abstract and on Contamination, each.
7. Score of 1 or more on *CRA* and on *I&O*, each.
8. Score of 1 or more on *CRA* and on Contamination, each.
9. Score of 3 or more on Impossible and of 2 or more on Symbol.

DISCUSSION

All four hypotheses were confirmed. The Schizophrenics scored significantly higher than the Nonschizophrenics on six of the nine inkblot test scales: Impossible, Abstract, Supernatural, *CRA*, *I&O* and Symbol. These results support the validity of these signs as test indicators of schizophrenia. The cognitive attributes, which these scales were used to measure, seem characteristic of schizophrenics:

1. Poor reality-testing, and thought-disorder.
2. Preoccupation with abstract ideas, the supernatural and symbols.
3. Broken boundaries a) of the body-image, b) between fact and fantasy, and c) between different levels of abstraction.

In contrast to Rorschach's contention that "Contaminated whole answers were found only in schizophrenics" (Rorschach, 1942), a subject in the Nonschizophrenic group gave this response, and two others in this group gave whole responses, parts of which were contaminated. In accord with these findings, Beck reported Con-

taminations "in persons with brain pathology . . . manic excitements and . . . feeble-minded persons" (Beck, 1949). The data of the present study suggest, however, that if Contaminations are numerous on the Holtzman Test, this indicates schizophrenia. None of the Nonschizophrenics or Possible Schizophrenics had more than three Contaminations whereas one schizophrenic patient had four and another had 22 such responses!

Ancient and Self-Reference responses did not differentiate the Schizophrenic from the Nonschizophrenic group. What the latter two signs measure is not pathognomic of schizophrenia: preoccupation with the past and with oneself. However, when one excluded the SR 2 (least unrealistic self-reference) responses, the SR scale then differentiated the groups. Therefore, it seems that while self-preoccupation is not pathognomic of schizophrenia, bizarre self-preoccupation is.

Seven of the nine test variables were significantly related to thought-disorder, and eight signs were related to poor reality-testing. Therefore, the cognitive attributes which these scales measure seem characteristic of thought-disorder and poor reality-testing:

1. Preoccupation with a) abstract ideas, b) the supernatural, c) symbols and d) oneself and
2. Broken boundaries a) of the body-image, b) between fact and fantasy (autistic thinking) and c) be-

tween different levels or realms of abstraction.

Ancient was not related to thought-disorder but was to poor reality-testing. The attribute which this scale measures, preoccupation with the past, does not seem involved in thought-disorder but is related to poor reality-testing.

Preoccupation with the supernatural was found to differentiate schizophrenics from nonschizophrenics and was related to thought-disorder, poor reality-testing and autistic thinking. It may be that schizophrenics become preoccupied with the supernatural as a means of escape from painful reality, and as a compensatory way of satisfying frustrated wishes and of rationalizing their autistic mode of thinking.

Preoccupation with abstract ideas was related to schizophrenia, paranoid trends, pathological suspiciousness, poor reality-testing, thought-disorder, broken body-image boundaries and nonverbal abstract ability. Another interesting finding was that preoccupation with symbols, although an aspect of schizophrenic thinking, had a constructive side to it in that it related to the ability to do nonverbal abstract thinking and to do tasks involving symbols.

The data suggest that impersonal, nonverbal abstract thinking is not impaired in schizophrenia. This accords with Rapaport, who wrote:

The Block Design score of the Schizophrenics should not show any significant impairment . . . and should be above their Performance Mean . . . striking retention of efficiency for the Schizophrenics (Rapaport, Gill & Schafer, 1946).

Broken body-image boundaries were related to schizophrenia, pathological suspiciousness, poor reality-testing, and thought-disorder. Also, a significant positive relation was found between broken body-image boundaries and broken cognitive boundaries, involving the inability to make distinctions between fact and fantasy, between separate percepts, and between differ-

ent levels of abstraction.

The results of the present research support Hozier's finding in regard to schizophrenics that "the breakdown of the sense of reality involves a breakdown of the bodily self" (Hozier, 1959). She distinguished between reality-testing and a sense of reality:

Reality-testing refers to testing something via the intellectual processes, and a sense of reality of experiencing something affectively (Hozier, 1960).

The present findings go even further than Hozier's, in that they indicate a relation between reality-testing (not merely a sense of reality) and one's body-image intactness.

Hozier provided a theory which may explain this relation:

As long as the body is not sufficiently cathected to become bounded and differentiated from everything that is not the body, there exists no frame of reference from which to judge the reality of events in the external world or the reality of one's own psychological experiences. . . . The conventional dimensions of space are body dimensions . . . depend on the position of the body in relationship to the object (Hozier, 1960).

A lack of body-image boundaries results in the inability to distinguish oneself from the environment. This seems to be a factor in psychotic symptoms (e.g., depersonalization and delusions of reference) involving the confusing of what belongs to oneself and what belongs to others. It is probable that appreciation of body-image boundaries affects, and is affected by, other essential cognitive and conceptual distinctions (e.g., between the reasonable and the irrational, reality and fantasy, concrete objects and abstract concepts, the animate and the inanimate, the feasible and the impossible, and between thought and action). This is in accord with the Freudian theory that:

The sum of the mental representations of the body and its organs, the so-called body-image, constitutes the idea of I and is of basic importance for the further formation of the ego (Fenichel, 1945).

REFERENCES

- Beck S. J. *Rorschach's test. II. A variety of personality pictures*. New York: Grune & Stratton, 1949.
- Cameron, N. The functional psychoses. In J. McV. Hunt (Ed.), *Personality and the behavior disorders. II*. New York: Ronald, 1944.
- Coville, W. J., Costello, T. W. & Rouke, F. L. *Abnormal psychology*. New York: Barnes & Noble, 1960.
- Edwards, A. L. *Experimental design in psychological research*. New York: Rinehart & Company, 1951.
- Fenichel, O. *The psychoanalytic theory of neurosis*. New York: W. W. Norton & Company, 1945.
- Hinsie, L. E. & Campbell, R. J. *Psychiatric dictionary*. New York: Oxford University Press, 1960.
- Holtzman, W. H., Thorpe, J. S., Swartz, J. D., & Herron, E. W. *Inkblot perception and personality*. Austin: The University of Texas Press, 1961.
- Hozier, Ann Q. On the breakdown of the sense of reality: a study of spatial perception in schizophrenia. *J. consult. Psychol.*, 1959, 23, 185-194.
- Hozier, Ann Q. A reply to Goldberg. *J. consult. Psychol.*, 1960, 24, 417-419.
- Rapaport, D., Gill, M., & Schafer, R. *Diagnostic psychological testing. I*. Chicago: The Year Book Publishers, Inc., 1946.
- Rorschach, H. *Psychodiagnostics*. New York: Grune & Stratton, 1942.
- Schafer, R. Bodies in schizophrenic Rorschach responses. *J. proj. Tech.*, 1960, 24, 267-281.
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- Received February 16, 1966
Revision received August 15, 1966

Some Personality Characteristics of Simulated Psychosis on the Kahn Test of Symbol Arrangement¹

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Summary: College sophomores (23 female and 21 male) tested twice with the KTSA, once under usual conditions and once with instructions to simulate "psychosis," were able to simulate the latter conditions. Possible variables distinguishing the simulated "psychotic" conditions (i.e., the variables did not differ in the two testing situations) were: (1) Shift in (D) to the left in the symbol pattern; (2) Number of letter element categories used; (3) Degree of estimated and actual recall of object arrangement; and (4) Correct basic perception with attempted "bizarre" modifications in naming objects. A flippant test-taking attitude and careless arrangement of objects with obvious bizarre elaborations in the object naming may also be useful indices in distinguishing simulated psychosis from more usual behavior. Results of this study must be considered tentative, and further cross-validation work seems warranted. Finally, caution must be exercised in equating these findings with those of actual malingerers seeking to simulate psychosis.

Various tests such as the MMPI (Cofer, Chance, and Judson, 1949; Gough, 1947, 1950; Hunt, 1948), Sentence Completion test (Meltzoff, 1951), Rorschach (Feldman and Graley, 1954), DAP test (Craddick, 1964a) and TAT (Kaplan and Eron, 1965) have been used to investigate behavior under a "set" of simulated maladjustment. Rosenberg and Feldberg's (1944) study seems unique in using actual or suspected malingerers. Jones' (1951) study with the TAT is also unusual because his Ss were instructed to respond in their usual manner while first taking the test, then asked to respond with the least likely story that came to mind. The two latter studies indicated that an S generally can fake his test responses in the manner requested.

One important factor in studies of this nature is that experimental simulation of psychosis may not be identical to behavior of actual malingerers, and Marks and Seaman (1963) caution against equating results from the two types of studies. The behavior of the experimentally induced malinger-

ing group might be interpreted as their perception of the behavior of the "abnormal" group. Ossipov (1944, pp. 39-40) noted that malingerers generally indicated an unstable person such as a psychopath "who by imitating a psychosis merely accentuates his own latent tendencies so that malingerers is really pseudo-malingerers." He also stated, "every malingerer is an actor who portrays an illness as he understands it." The naive and undisguised psychotic-like responses of Jones' (1951) Ss could suggest that every normal person has in his response repertory, psychotic-like responses not usually expressed because of a relatively intact ego but which could emerge under ego-relaxing conditions. Expansiveness, as reflected by Ss' enlarged DAP test drawings (Craddick, 1964a), may reflect the attitude that Ss assume in "playing the game" of acting "crazy." However, individuals who cannot relax sufficiently to regress may be threatened by such a "game." Feldman and Graley's (1954) less well-adjusted Ss could not effect the required "set" and reacted in a threatened manner. However, their Ss who could cope with the situation appeared more flippant than would be expected of clients in an actual clini-

¹This research was supported in part by a Washington University Faculty Research Grant and a Special Fund of the Dean of the College of Arts and Sciences.

cal test situation. Hunt (1946) and Ossipov (1944) found similar results with Ss who often seemed to overplay their role. Kaplan and Eron's (1965, p. 502) Ss displayed a similar accentuation of simulated maladjusted behavior and when asked to portray aggression and hostility, "did more violence both to the stimulus demands of the cards and the story telling demands of the situation."

Although the manipulation of symbolic materials on a motoric and abstract association level under conditions of simulated "psychosis" apparently has not yet been investigated (with the possible exception of the DAP test by Craddick, 1964a), this approach might explain the dynamic behavioral processes involved in experimental "role playing of psychosis." The Kahn Test of Symbol Arrangement (KTSA) (Kahn, 1956, 1957) seems ideally suited for this purpose because its objective-projective approach can tap the various levels of motoric and abstract-associative thinking.

The KTSA, reviewed by L'Abate and Craddick (1965), uses 15 plastic objects (3 hearts, 3 dogs, 3 stars, 2 butterflies, a cross, an anchor, a circle and a parrot), each representing some meaningful aspect of our culture and generally lending themselves to grouping according to various concepts. However, each object has properties of "similarity with a difference and mutual exclusiveness of logical relatedness" (Kahn, 1957, p. 99). For example, of three dogs, two are the same size and two are the same color; therefore, if grouped according to color alone, one dog must be excluded, or if grouped according to size, another dog must be excluded. However, if S groups the dogs according to the concept of "animals," all may be grouped together. Following five different arrangements of the objects upon a segmented felt strip, S is permitted freedom in naming, associating to, and explaining reasons for his arrangements. The levels of symbolic

associations are then scored according to criteria established by Kahn (1956, 1957) and indicated by letters (A), (B), (C), (D), (E), (F), (X), (Y), and (Z). Each letter has been weighted from 0 (for [A]) to 8 (for [Z]). By tabulating the frequencies of each scoring category, adding the score and ranking the relative frequencies of each letter (placing the most frequent letter to the left, and in case of tied frequencies, placing the letter closest to the beginning of the alphabet nearer the left) both a Numerical Element (NE) and a Letter Element (LE) are generated. When the NE and LE are combined, the Symbol Pattern is formed.

Adequate scoring reliability (Kahn, 1957), despite some criticism by Hedlund and Mills and counter criticism by Craddick (1964b), has been substantiated (Craddick and Stern, 1965; Clack, Guerin and Latham, 1966) and can be facilitated by using Hill and Latham's (1962) manual of scoring responses. The various categories are scored using the following criteria: (A) Bizarre, illogical, inappropriate; (B) No reason given, no symbolization used; (C) Repetition of some previous response or symbolization; (D) Naming or giving a function of the object instead of a symbolic meaning; (E) Using shape or form of the object; (F) Using color or absence of color; (X) A concrete association tied directly to the stimulus properties of the object (e.g., "anchor symbolizes an anchor of a ship"); (Y) Abstraction with more freedom from the stimulus object, but still relating to something tangible (e.g., "anchor symbolizes the navy"); (Z) An association completely free from the stimulus properties of the object and representing something intangible (e.g., "anchor symbolizes stability").

The present study was not primarily concerned with the question of whether or not the KTSA can be faked since previous studies found that Ss can simulate maladjusted behavior on tests. Rather, the study was

directed towards investigating any possible variables within the contexts of experimentally induced simulated "psychosis."

In asking *S* to simulate "psychosis" several behavioral changes are required and several questions may be asked. Is *S* flexible enough to simulate a response pattern other than his own? Can he drop his usual defenses and, in "playing the game," reveal more primitive patterns of behavior? This may seem threatening to some *Ss* while others may find the permissible regression enjoyable. Although it is a temptation to use the resultant behavior as indices of malingering, it may not be taken in this way. The obvious difference between the motivation of *Ss* and of persons seeking to simulate "psychotic" behavior to avoid the draft or seek absolvment from crime on the basis of psychiatric difficulties precludes direct interpretive relationships. However, the results of the study could yield clues for use in future studies of malingering behavior.

Specific hypotheses for the present study are:

(1) Under the "set" to simulate "psychosis," *Ss* will give an increased number of (A) responses, resulting in a decrease in their KTSA NE. Further, when Kahn's (1957) criteria for screening psychotics is used, more of these *Ss*' protocols will be judged "psychotic" than will their protocols produced under usual testing conditions;

(2) The number of inverted, slanted, or out-of-segment objects placed on the felt strip during the five arrangements will be greater under the simulated "psychosis" set than under usual conditions, since such careless arrangements could reflect a "devil-may-care" attitude while *S* is playfully regressing;

(3) Sequential effects in the test behavior will occur between *Ss* who first take the test under usual conditions, then as "psychotics," and *Ss* who take

the test first as "psychotics" and then as themselves. The latter group may find it relatively easy to regress and associate with primitive bizarre responses. However, they may find it more difficult on the second test to block such associations and give more ego-judgmental types of responses since they must now perform under a threat. The threat is that unless their responses differ under the second "normal" set, they face the unpleasant conclusion that they are not too different from the psychotic whom they first portrayed. Differences in behavior will be seen between Groups. That is, the group taking the test first under simulated psychotic conditions will have more (A), a smaller NE and be more often erroneously identified as "psychotic" under normal test conditions than will the other group taking the test in reversed order. The Groups will also differ in their LE as a consequence of the sequence of test-taking instructions;

(4) *Ss* will exhibit much poorer recall under conditions of simulated "psychosis" than under usual test conditions, since they will presume to exhibit poor memory when portraying the psychotic.

PROCEDURE

College sophomores participating in research as part of the introductory psychology course requirements volunteered to take part in the present study. As they came to the experimental room, 23 females and 21 males were randomly assigned to one of two groups. Group I first took the KTSA with standard instructions. Immediately following this testing, they were told: "Now I would like you to imagine that you are a 'crazy' person; that is, you are very suspicious, critical and hostile, and you think other people don't like you and are out to persecute you and do you harm. Take the test now as you think this type of person would." Group II was tested first under the simulated "psychosis" set and secondly as themselves.

TABLE I—Mean Symbol Pattern for Groups Tested with the KTSA in the Usual Manner and with "Simulated Psychosis"

| Groups | | Trials | |
|--------------------------|----|----------------------|---------------------|
| | | Usual Administration | Simulated Psychosis |
| I Usual Administration | M | 107.82-ZCYEFXDBA | 63.27-AZDCFYEXB |
| | SD | 27.43 | 20.64 |
| II Simulated "Psychosis" | M | 114.69-ZYFECXDBA | 76.73-AZDYFEXCB |
| | SD | 26.53 | 30.47 |
| I and II Combined | M | 111.25-ZYCFEXDBA | 70.00-AZDYFEXCB |
| | SD | 27.23 | 26.88 |

To estimate the scorer reliability, 10 "normal" and 10 "psychotic" records were selected at random from all the records independently scored by both the female E^2 and the author. Overall agreement on all items was 89.5%, therefore, reliability was assumed and the author's scoring of all protocols was used in the study.

In a previous unpublished study, 10 USAF males took the KTSA on three different occasions (separated in time first by one month and then by 20 minutes) and indicated no significant test-retest changes. It was subsequently assumed that practice had no significant effect on the KTSA and a control group was not used in the present study. However, to safeguard against possible sequential effects confounded by two different set conditions, the set for normal testing followed by testing simulated "psychosis" was counterbalanced by another group taking the tests under reversed set conditions. To ascertain where operative sequential effects occurred, in most cases a 2×2 (Groups X "Sets") trend analysis (Edwards, 1960) was computed on the data.

RESULTS

The means of the NE, LE, and Symbol Patterns for the two groups under each testing condition are indicated in Table I. To ascertain any Group or "Set" differences in the total number of scoring categories, a 2×2 (Groups

X "Sets") trend analysis was performed on this data. The results indicated no statistically significant main or interaction effects. Therefore, in terms of this important variable, both Groups could be considered equal under each testing condition.

A similar trend analysis performed on the NE indicated that "Sets" only was a significant variable ($F = 61.10$, $p < .001$, $df = 1/42$) with a significant decrease in the NE exhibited under simulated "psychotic" conditions.

Another 2×2 trend analysis performed on a $\sqrt{10} + \text{raw score} \times 100$ transformation (because of the high standard deviation) of the different LE categories (see Table II) indicated no significant difference between Groups, or interaction effects of Groups X Sets. However, there were significant differences in "Sets" of all categories except (B), (D), and (F) (See summary of these analyses in Table III). Further examination of the data indicated that (A) showed a vast increase under simulated "psychotic" conditions, apparently at the expense of all other categories which showed a significant decrease.

Using Kahn's (1957) criteria for screening psychotics (i.e. a Numerical Element between 0 and 49, or a Numerical Element between 50 and 90 with [A] present), 30 of 44 simulated "psychotic" records were identified as "psychotic" and 40 of 44 "normal" records were identified as "not psychotic." To ascertain if both groups were able to simulate "psychosis" at a better-than-chance level,

*The author wishes to acknowledge the assistance of Miss Anne Beeler who acted as E for this experiment.

TABLE II—Letter Element Categories of Symbol Pattern of Ss Tested with the KTSA under Usual Test Conditions and under Simulated "Psychosis" Set
(Group I—Usual Administration First, Simulated "Psychosis" Set Second;
Group II—Vice Versa)

| Letter | Group II -- Vice versa) | | | | Groups I and II Combined | |
|----------------------|-------------------------|------|-----------|------|--------------------------|------|
| | Group I | | Group II | | Combined | |
| | M | SD | M | SD | M | SD |
| Usual Administration | | | | | | |
| A | .36 | .77 | 1.18 | 1.59 | .77 | 1.13 |
| B | 1.81 | 1.73 | 1.36 | 1.41 | 1.59 | 1.59 |
| C | 3.73 | 2.73 | 2.54 | 1.88 | 3.14 | 2.31 |
| D | 2.45 | 2.86 | 2.36 | 1.97 | 2.41 | 2.45 |
| E | 3.14 | 1.88 | 2.86 | 2.22 | 3.00 | 4.27 |
| F | 3.00 | 2.22 | 3.04 | 2.46 | 3.02 | 2.37 |
| X | 2.59 | 2.81 | 2.54 | 2.13 | 2.57 | 2.45 |
| Y | 3.23 | 2.86 | 3.50 | 3.04 | 3.36 | 2.42 |
| Z | 6.41 | 5.16 | 7.36 | 4.71 | 6.89 | 4.95 |
| Letter Element | ZCYEFXDBA | | ZYFECXDBA | | ZCYFEXDBA | |
| Simulated Psychosis | | | | | | |
| A | 8.68 | 5.96 | 7.41 | 6.35 | 8.18 | 6.13 |
| B | 1.05 | 1.29 | 1.09 | 1.24 | 1.07 | 1.27 |
| C | 2.27 | 2.28 | 1.77 | 1.73 | 2.02 | 2.00 |
| D | 3.09 | 4.26 | 3.04 | 2.48 | 3.07 | 3.14 |
| E | 1.36 | 1.34 | 2.54 | 2.34 | 1.95 | 1.98 |
| F | 1.77 | 2.26 | 2.68 | 2.58 | 2.45 | 2.24 |
| X | 1.23 | 1.47 | 2.14 | 1.54 | 1.68 | 1.64 |
| Y | 1.82 | 1.77 | 2.73 | 2.20 | 2.27 | 2.05 |
| Z | 3.86 | 2.77 | 3.77 | 2.58 | 3.82 | 2.67 |
| Letter Element | AZDCFYEXB | | AZDYFEXCB | | AZDFYCEXB | |

TABLE III—Summary of Trend Analyses of the Various KTSA Letter Elements (Group X "Set")

| Letter | F Value for Group | F Value for "Set" | F Value for Group X |
|--------|-------------------|-------------------|---------------------|
| A | <1.0 | 86.4** | 2.5 |
| B | <1.0 | 4.0 | <1.0 |
| C | <1.7 | 13.0** | <1.0 |
| D | <1.0 | 2.3 | <1.0 |
| E | <1.0 | 8.7** | 4.0 |
| F | <1.0 | 3.5 | <1.0 |
| X | <1.0 | 5.8* | 1.8 |
| Y | 1.4 | 5.0* | <1.0 |
| Z | <1.0 | 15.2** | <1.0 |

df for all above values = 1/42

* $p = .05$ (F value of 4.1 required for $p = .05$)

** $p = .01$

the McNemar Test for the Significance of Change (Siegel, 1956) was computed for each group. Group I yielded a $\chi^2 = 14.00$ ($p < .001$, $df = 1$, two-tailed test) and Group II yielded a $\chi^2 = 6.66$ ($p < .01$, $df = 1$, two-tailed test) indicating both groups' abilities to shift their "sets" from normal to "psychotic."

The number of inverted, slanted, or out-of-segment objects on the five arrangements (see Table IV) was transformed in an identical manner as indicated previously and analyzed with a similar 2×2 trend analysis. Only one variable ("Sets") was found to be significant ($F = 7.3$, $p < .01$, df

TABLE IV—Number of Objects Slanted, Inverted, or Out-of-Segment on Five KTSA Arrangements under Usual Testing Conditions and when Simulating "Psychosis"

| Groups | Usual Administration | | Simulated Psychosis | |
|---|----------------------|------|---------------------|------|
| | M | SD | M | SD |
| I Usual Administration First, Simulated "Psychosis" Second | 10.2 | 10.2 | 14.6 | 12.2 |
| II Simulated "Psychosis" First; Usual Administration Second | 12.1 | 8.6 | 13.4 | 10.1 |
| I and II Combined | 11.8 | 8.6 | 14.0 | 11.2 |

$= 1/42$), suggesting that under simulated "psychotic" conditions, Ss exhibited more careless, playful behavior.

The first, second and actual recall scores (whose means are indicated in Table V) were transformed in the usual way and a similar trend analysis performed on each. These analyses yielded no significant Group, Sets or Group \times Sets interaction F values.

From an investigation of the data, several features appear between the KTSA taken under normal and under "psychotic" conditions. (D) is positioned more to the left of LE under psychotic conditions (possibly as a function of a reduction in frequencies of the other categories). Since (D) may involve more perception than abstract thinking, this perceptual function (as indicated in the correct naming of the objects) could be a potentially useful variable in distinguishing between a normal and a simulated psychotic KTSA protocol. That is, inspection of the protocols indicated that, when assuming the role of the psychotic, S did not appear to distort his perception of the objects (since only 10 of 44 Ss named more than 2 objects incorrectly... and 80% of the 10 were understandable because they did so for the amorphously shaped parrot object). The S did appear to handle the psychotic role by overplaying his hand in attributing some elaboration to the correct perception which he felt would make the response

appear psychotic, e.g. responding with "mourning cross," "dead dog," etc.

DISCUSSION

The hypothesis that S can simulate "psychosis" on the KTSA in terms of increased (A), decreased NE, and will be identified by Kahn's psychotic screening criteria was supported by this study. Further, support was found for the hypothesis that Ss simulating psychosis under these conditions would invert, slant, or place out-of-segment more objects during their arrangement as contrasted to usual test-taking conditions. Two other hypotheses, (1) that there would be differences between groups taking the test first under simulated psychotic sets and then as themselves, versus those Ss taking the test under reversed set conditions; (2) that the recall under simulated psychosis would be less than under normal conditions; were not supported.

The study does suggest that under experimental simulated "psychosis" set, S may be distinguished from real psychotics by more scoring categories, more (D), more accurate perception in naming of objects, and accurate recall of arrangements. The overall flip-pant attitude of Ss taking the KTSA under simulated "psychotic" conditions (previously noted by Feldman and Graley using the Rorschach) was exhibited in this study primarily through disorderly arrangements of objects. Future research addressed to the meaning of careless responses

TABLE V—Scores of the First and Second Estimations and Actual Scores of Correct Object Arrangements on the Third Arrangement under Usual Conditions and under Simulated "Psychosis" Set

| Group | | First Arrangement | | Second Arrangement | | Actual Score | |
|-------------------|----|-------------------|---------------------|--------------------|---------------------|------------------|---------------------|
| | | Usual Conditions | Simulated Psychosis | Usual Conditions | Simulated Psychosis | Usual Conditions | Simulated Psychosis |
| I | M | 8.50 | 8.23 | 9.82 | 9.95 | 10.86 | 9.91 |
| | SD | 4.01 | 5.15 | 4.17 | 5.03 | 3.46 | 5.03 |
| II | M | 10.00 | 11.00 | 11.64 | 11.50 | 11.77 | 11.77 |
| | SD | 1.41 | 4.84 | 3.84 | 4.54 | 4.16 | 3.98 |
| I and II Combined | M | 9.25 | 9.61 | 10.73 | 10.52 | 11.32 | 10.98 |
| | SD | 4.33 | 5.19 | 1.33 | 4.89 | 3.45 | 4.37 |

should consider the underlying motives.

It must be stressed that the foregoing results are indicative only of the expressed behavior of the "psychotic" as seen by the Ss, and not necessarily a replication of actual psychotic behavior. Furthermore, the results cannot entirely be equated with those of malingerers whose test-taking attitude and motivation would be different from these Ss. Similarities between the behavior of Kahn's (1957, p 141) "malingerer" group and the present one are the prominent (D) and the number of carelessly placed objects during the arrangements. The two groups (i.e., Kahn's "malingerers" and the Ss simulating "psychosis" in this study) differ in terms of the higher number of (C) and increased recall scores exhibited by Kahn's group. Reasons for this difference may be that the groups were not equivalent in terms of "malingerer" behavior, the differences were artifacts in Kahn's group, or, as Kahn³ has indicated, there may be many kinds of malingerers.

REFERENCES

- Clack, G. S., Guerin, A. J. & Latham, W. R. Scorer reliability of the KTSA. *J. clin. Psychol.*, 1966, 22, 91-93.
- Cofer, C. N., Chance, J. & Judson, A. J. A study of malingering on the "MMPI." *J. psychol.*, 1949, 27, 491-499.
- Craddick, R. A. Size of drawings-of-a-person as a function of simulating "psychosis." *Percept. mot. Skills*, 1964a, 18, 308.
- Craddick, R. A. Comment on scorer reliability and validity of the Kahn Test of Symbol Arrangement. *Psychol. Rep.*, 1964, 15, 463-466.
- Craddick, R. A. & Stern, M. R. Note on the scorer reliability of the Kahn Test of Symbol Arrangement. *J. clin. Psychol.*, 1965, 21, 197.
- Edwards, A. L. *Experimental design in psychological research*. New York: Holt, Rinehart, Winston, 1960.
- ³In personal correspondence with Dr. Kahn he noted that "...there are malingerers and malingerers — some desperate, some half-hearted, some clever, some stupid, some impulsive, some cunning and subtle in their malingering, and all types have differences in which they approach the task of malingering."
- Feldman, M. J. & Graley, J. The effects of an experimental set to simulate abnormality on group Rorschach performance. *J. proj. Tech.*, 1954, 18, 326-334.
- Gough, H. G. Simulated patterns on the MMPI. *J. abnorm. soc. Psychol.*, 1947, 42, 215-225.
- Gough, H. G. The F minux K dissimulation index on the MMPI. *J. consult. Psychol.*, 1950, 14, 408-413.
- Hedlund, J. L. & Mills, D. H. Scorer reliability and the KTSA. *J. clin. Psychol.*, 1964, 20, 95-100.
- Hill, L. K. & Latham, W. R. *The Kahn Test of Symbol Arrangement*. Rev. ed. USAF Hospital, Lackland AFB, Texas, 1962 (ditto).
- Hunt, H. F. The effect of deliberate deception on MMPI performance. *J. consult. Psychol.*, 1948, 12, 396-402.
- Hunt, W. A. The detection of malingering: A further study. *U.S. Naval Med. Bull.*, 1946, 46, 249-254.
- Jones, R. M. The negation TAT and repressed thought content. *J. proj. Tech.*, 1951, 20, 297-303.
- Kahn, T. C. Kahn Test of Symbol Arrangement: Administration and scoring. *Percept. mot. Skills*, 1956, 6, 299-344. (Monogr. Suppl. 4).
- Kahn, T. C. Kahn Test of Symbol Arrangement: Clinical manual. *Percept. mot. Skills*, 1957, 7, 97-168. (Monogr. Suppl. 1).
- Kaplan, M. F. & Eron, L. D. Test sophistication and faking in the TAT situation. *J. proj. Tech. & pers. Assess.*, 1965, 29, 495-503.
- L'Abate, L. & Craddick, R. A. The Kahn Test of Symbol Arrangement (KTSA): A critical review. *J. clin. Psychol.*, 1965, 21, 115-135 (Monogr. Suppl. 19).
- Marks, P. A. & Seeman, W. *An atlas for use with the MMPI: The actuarial description of abnormal personality*. Baltimore: Williams & Wilkins Co., 1963.
- Meltzoff, J. The effect of mental set and item structure upon response to a projective test. *J. abnorm. soc. Psychol.*, 1951, 46, 177-189.
- Ossipov, V. P. Malingering: The simulation of psychosis. *Bull. Menninger Clinic*, 1944, 8, 39-42.
- Rosenberg, S. J. & Feldberg, T. M. Rorschach characteristics of a group of malingerers. *Rorschach res. Exch.*, 1944, 8, 141-158.
- Siegel, S. *Nonparametric statistics*. New York: McGraw-Hill, 1956.
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Received May 16, 1966

Revision received August 18, 1966

Sex Differences in Fantasy Patterns¹

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Summary: A consideration of sex-differences in constitution, social training and biological role suggests a characteristic fantasy pattern for each sex. In terms of the sequence of action and feeling, women should show a movement from more "negative" emotion and experience ("deprivation") to more "positive" emotion and experience ("enhancement"). With men, the direction of movement should be reversed. This hypothesis was tested with thematic stories written by 60 female and 44 male college students. Averaging scores for the four pictures used, the hypothesis is strongly supported ($p < .0005$). Taking pictures separately, the hypothesis is supported in three out of four cases. These results are discussed in the context of a general theory of psychological sex-differences.

The social sciences have recently come under attack for propagating an inadequate, reactionary and socially harmful conception of women (Friedman, 1963; Rossi, 1964). These criticisms, although sometimes strident and rigid, cannot be dismissed. The female case has been often neglected, and too frequently forced into inappropriate male categories. As McClelland (1965) points out, psychologists have often set up dimensions where the female can only come out as "not male" (weak instead of strong, small instead of large, etc.). And the persistent tendency to read "different" as "deficient" leads to less than rational controversy in this field, especially where it touches on delicate social balances and cherished mythologies. Freud was forced to conclude that "psychology cannot solve the riddle of femininity" (1933, p. 158.).

The list of empirically validated sex differences is long and will not be recited here (good surveys are offered in Anastasi, 1958; Johnson & Terman, 1940; Tyler, 1956). The overall impression is one of tremendous diversity and heterogeneity, of many scattered and fortuitous findings. It is at least clear that the ramifications of

maleness or femaleness go far beyond the "basics" of biological structure and function, extending into subtleties of thought, feeling, imagination and mannerism. But the lack of any broad directing theory makes the integration of findings a difficult task.

One broad theoretical framework is offered by psychoanalysis and its derivatives. This paper reports an attempt to test some hypotheses about sex-linked fantasy patterns drawn from analytically-oriented case studies, and to make some inferences about sex differences in personality. Although the investigation concerns both male and female fantasy patterns, more space will be devoted to the female case. Given our usual male-oriented baseline, it could be argued that the study of "sex differences" is in fact the study of women.

THEORETICAL BACKGROUND

The Female Pattern

Most of Freud's thought about women centered around the concept of "penis-envy" (1924b, 1925, 1931). But in his final paper on women (1933) he expands his earlier formulation and introduces the idea of masochism: "We must not overlook one particularly constant relation between femininity and instinctual life. The repression of their aggressiveness, which is imposed on women by their constitutions and by society, favors the development of strong masochistic im-

¹This work was supported by NIH grants MH-02980 to David McClelland and 2 F1 MH-21, 005-02 to the author. The author is indebted to Drs. David McClelland and Robert White for valuable advice and guidance, and to Peter Hunsberger for help in scoring protocols.

pulses, which have the effect of binding erotically the destructive tendencies which have been turned inwards. Masochism is then, as they say, truly feminine." (p. 158). This approach has been elaborated by Deutsch (1944). She sees three primary traits as making up the "feminine core": passivity, masochism and narcissism. "Passivity" does not imply apathy or inactivity, but rather the tendency for the female to direct her activity inward, resulting in greater proneness to identification, stronger fantasy, subjectivity and inner perception.²

This passivity is assumed to stem from three factors: a) the female is constitutionally less active and aggressive, b) the female genital organ is not as appropriate as the male's for the expression of active or aggressive impulses and this leads to at least partial renunciation of this mode, and c) the social environment exerts pressures on the girl to inhibit activity and aggression. There seems to be clear empirical evidence for the existence of the first (Pratt, 1946; Terman & Tyler, 1946) and third (Kagan & Moss, 1962) factors, while the argument for the effect of different genital structures rests largely on clinical data.

Along with passivity goes masochism. The reasoning here (following the lines laid down by Freud, 1924a) is that activity and aggression are inextricably linked. As activity is inhibited and turned inwards, aggression follows the same course: "activity becomes passivity, and aggression is renounced for the sake of being loved. In this renunciation the aggressive forces that are not actively spent must find an outlet, and they do this by en-

dowing the passive state of being loved with a masochistic character." Deutsch (1944, vol. 1, p. 251) feels that the father plays a decisive role in this transformation. He "bribes" the little girl to renounce further intensification of activity and aggression by offering her love and tenderness. In addition to rewarding "feminine passivity," the father actively promotes the "masochistic" mode: "He appears, without being conscious of it, as a seducer, with whose help the girl's aggressive instinctual components are transformed into masochistic ones. The masochistic ingredient in the relation to the father appears in the active games with him, which later assume an increasingly erotic character. It is enough to observe the little girl's fearful jubilation when the father performs acrobatic tricks with her that are often painful, when he throws her up in the air, or lets her ride 'piggy back' on his shoulders." (Deutsch 1944, vol. 1, p. 252).

A complete definition of "feminine masochism" is not easy. Deutsch defines the term indirectly, by a succession of clinical examples. She seems to be pointing toward an unconscious association of pain and pleasure. "Pain" is here defined broadly, including psychological discomfort or a risking of the "self" emotionally or physically (e.g., the "fearful jubilation" in the above quote). Some of her own examples might be helpful here: subjecting oneself to a man's will, being attracted by suffering, a painful longing and wish to suffer for the lover, renunciation in favor of others, a feeling that suffering is compensated by love, rape fantasies, and the willingness to serve a cause or a human being with love and abnegation. This is obviously a wide range of behaviors and feelings, but there does seem to be a common theme of willingness to risk one's physical or psychological "integrity" in order to obtain something which is valued. "Integrity" here means the maintenance of a sharp boundary (or barrier) between the

² Here, as throughout, the psychoanalytic concepts may be easily translated into a more social-psychological or sociological approach. Note, for example, the similarity of Parsons' (1955) conception of sex roles, where he sees the male role as "instrumental" (involving activity in the material world) and the female role as "expressive" (involving concern with emotions and the "social world").

self and the environment, and the constant effort to maintain ascendancy (or conscious ego control) over the environment, both social and material. In Deutsch's examples the hoped-for or anticipated "reward" is usually love (loving or being loved), but this may be unnecessarily narrow.

Turning to the adult woman, Deutsch maintains that feminine masochism is an essential component of her role:

"Woman's entire psychologic preparation for the sexual and reproductive functions is connected with masochistic ideas. In these ideas, coitus is closely associated with the act of defloration, and defloration with rape and a painful penetration of the body. The sexual readiness, the psychologic pleasure-affirming preparation for the sexual act, draws its masochistic components from two sources—one infantile, regressive, and dispositional and the other *real*. For defloration is really painful and involves the destruction of a part of the body. The rape fantasy reveals itself as only an exaggeration of reality. . . . A certain amount of masochism as psychologic preparation for adjustment to the sexual functions is necessary in woman." (1944, vol. 1, p. 276). The same argument is made regarding childbirth. Deutsch feels that the wish for a child acquires a masochistic character through association with fantasies of pain and danger and because of the reality of the birth process. Thus feminine masochism is a cumulative result of constitution, anatomy, social training, and biological role.

There are many ways one might try to identify a trait like feminine masochism. The approach taken in this study centers on fantasy. Deutsch, in commenting on masochistic fantasies, says that "often the fantasy is divided into two acts: the first, the masochistic act, produces the sexual tension, and the second, the amorous act, supplies all the delights of being loved and desired." (1944, vol. 1, p. 255). Expand-

ing on this, feminine masochism could be defined as a typical *sequence* or pattern of action and feeling. Suffering followed by joy, failure followed by success, risking oneself followed by love—these are the sorts of sequences one would expect in women's fantasy.

The Male Pattern

What of the male case? Murray's clinical study, "American Icarus" (1955), offers some leads here. He outlines a syndrome involving, among other things, ascensionism (the wish to overcome gravity, rise, fly, be a spectacular success) and an underlying fear of falling (being injured, failing, losing one's self-confidence). This "Icarus complex" reveals itself in fantasies of flying, floating, rising, and of falling or precipitation (either directly or through metaphors of success and failure). The basic pattern is one of ascension followed by descension, "an archtypal thematic sequence against which we are warned by the ancient aphorism: 'Pride cometh before a fall.'" (1955, p. 635). A strong dose of narcissism and a set of unrealistic goals result in an extreme and "immature" syndrome as Murray describes it in this particular case.

But the underlying pattern may be more general than this. Murray feels that one of the experiential bases of the ascension-descension cycle is the repeated sequence of phallic tumescence and detumescence. Federn (1948) states that an erection, with its apparent suspension of the laws of gravity, is perceived as flying by the infantile psyche, and this experience serves as a stimulus for dreams of flying and general ascendance (ambition, vanity, exhibitionism, etc.). Since most males have this biological experience over and over from the early years of life, it could be assumed that the ascension and descension sequence is a potentially powerful metaphor for them. Additional support is offered by Erickson's (1951, 1964) studies of play constructions in preadolescents. Concern with height

and collapse emerged as a masculine theme: "While high structures are prevalent in the configurations of the boys, there is also much play with the danger of collapse or downfall." (1964, pp. 590-591). Erickson also relates this theme to the boy's experience of his body.

Switching to a more social level, it is possible to point to elements in the male role which could support this pattern. Males are typically trained to be active and aggressive (Barry, Bacon & Child, 1957; Kagan & Moss, 1962), to overcome the environment by frontal attack. As Fromm (1943) points out, this can lead to the male's being in a continual "test situation," always having to prove his ultimate endurance and superiority. The more this pressure is felt, consciously or unconsciously, the more anxiety about failure, about "falling down on the job." And there must always be an awareness that "decline" of one sort or another is inevitable, that the trajectory cannot be always upwards. In a more primitive economy, the loss of strength with increasing age might be the turning point; in any case, the more or less conscious awareness of death must temper the hope of rising forever.

Obviously many factors enter into this kind of patterning of life experience. One of the most blatant omissions here is the effect of age. Several of the studies cited in this section deal with adolescents or preadolescents, and thus it may be a phenomenon of youth. But since the sample to be dealt with below is a college group, this possibility will not affect the specific hypotheses to be tested, although it must obviously temper all attempts at generalization. Suffice it to say that there is reason to expect male fantasy to show a pattern of success followed by failure, gain followed by loss, high expectations followed by unsatisfying achievements.

HYPOTHESIS

Males and females will exhibit dif-

ferent patterns of physical and emotional movement in TAT fantasy. The typical female theme will be one of relatively "negative" emotion or experience followed by more "positive" emotion or experience, while the typical male theme will be the reverse. This predicted difference is assumed to reflect sex differences in social role, including expectations concerning one's life cycle, and in the experience of one's own body.

METHOD

A scoring system was developed on the basis of stories written by Harvard and Radcliffe students to a picture showing a male and female trapeze team performing in mid-air. The two general scoring categories are "deprivation" and "enhancement."⁸ Deprivation refers to such things as physical tension or pain, injury, death, continued exertion, falling or losing control, growing old and weak, negative emotion (nervousness, fear, hate, etc.), negative press (being under compulsion, being trapped), self sacrifice without any mention of gain or gratification, failure, and dissatisfaction. Enhancement refers to satisfaction of physical need, physical excellence or accomplishment, rising (or cessation of fall), success, growth, positive emotion (happiness, love, excitement, etc.), positive anticipation, nurturant press, attention, revenge and insight or realization. These categories are intentionally very broad, ranging from specific physical rising or falling to diffuse emotional shifts.

Since the concern is with sequence, not just total occurrence, the first step in scoring is to establish an anchor point within the story. I have called this anchor point the "pivotal incident," and it is generally defined as

⁸This approach was suggested by McClelland in a paper (1963a) which outlines the mythological and cultural aspects of the present hypothesis. Although the labels are "loaded" in the direction of male values (tending to equate "giving" with "giving up," etc.), I haven't been able to find any better descriptive terms.

the dramatic turning point of the story, the central act or feeling which mediates between the past and the future. Deprivation and enhancement units are weighted according to their position before or after the pivotal incident. The numerical weights were assigned such that: a story with one deprivation unit before the pivotal incident and one enhancement unit after scores +2; a story with the opposite pattern (one enhancement before and one deprivation after) scores -2; a story with equal numbers of the same kind of units before and after the pivotal incident scores 0. Many variations and combinations of these basic patterns occur, but the basic rule is that a positive score indicates a story with a positive shift and a negative score indicates a story with a negative shift. Thus the predicted male pattern (enhancement followed by deprivation) will score in the negative direction, while the predicted female pattern (deprivation followed by enhancement) will score in the positive direction. Whether this difference is absolute or relative will depend on the particular numerical weights, pictures and subjects involved.

The following story is an example of the scoring process. Each scored unit is identified as deprivation (D) or enhancement (E) and is given a numerical weight depending on its position before or after the pivotal incident (P.I.):

The young lady is a *newcomer* (D, +1) *being caught* (E, -1) for the first time before an audience. The man is somewhat *older and experienced* (E, -1) in trapeze work. The girl and man *have been infatuated with one another* (E, -1), this providing incentive for the young lady, to *fly* (E, -1) — something she really *doesn't enjoy* (D, +1). While *flying* (E, -1) she thinks only of her *love* (E, -1), diverting her thoughts from the *agony* (D, +1) of this activity. He, in turn, *revels in his physical prowess* (E, -1). One day after *many*

successful performance (E, -1) — his *love has dwindled* (D, +1) — *he lets her fall* (P.I.) The net not securely fastened doesn't hold her and *she is killed* (D, -1). (Total score = -5).⁴

The subjects for this study were 104 college students, 60 female and 44 male. The relative homogeneity of this group in terms of age, social class and intelligence is both an advantage and a disadvantage. It limits the generality of any findings, but at the same time helps control for these factors in comparing males and females. This is a stringent test of the hypothesis in that many sex differences are narrowed in college populations (Johnson & Terman, 1940; Rabban, 1950). The easy availability of college students and their superior performance on the TAT (Veroff, 1961) finally determined the choice. The Ss were drawn from a large urban coed university, a private women's college, and an engineering college. They were all members of undergraduate psychology courses, were not paid for their participation, and did not initially volunteer for the study. It was a very compliant group of conscripts, with only one or two complete rejections of the TAT.

A group form TAT was used, with four pictures presented in a fixed order. The instructions emphasized the rapid production of a dramatic, creative and psychologically insightful story. The pictures were selected with the aim of including a broad, yet pertinent, range of people and situations. The first picture (A) was the same one on which the scoring system was developed. It shows a man and women doing a trapeze act in mid-air against a dark background. This picture could be expected to pull rather direct and dramatic stories of rising and falling. The second picture (B) shows a young bullfighter walking in the ring. He has an intense expression on his face and the picture is suggestive of

⁴A complete outline of the scoring system is available on request from the author.

some sort of crisis, either physical or spiritual. The third picture (C) presents a rather shabby man and a barefoot woman sitting on a stone bench. Their ages are unclear. The woman has her head on her hands, while the man is lying back with his eyes closed. This picture does not have the direct or implicit action of the first two and would seem more conducive to static, interpersonal stories (and insofar as the first picture represents a peak, this picture represents the valley, the bottom). The last picture (D) shows a child either leaping or running in a field, with a bird flying above. The sex of the child is not clear. This is another action picture, its main distinction being the age of the central figure.

RESULTS

The 416 stories obtained were placed in a random order and were scored separately by two scorers. The reliability of the scoring system turned out to be acceptable (see Table I).

The first step, that of deciding whether a story is scorable or not, was reliable beyond the .05 level for all four pictures. As Table I shows, the score correlations are also generally good. All four correlations are significant beyond the .05 level and, except for picture C, (the man and woman on

the bench), they are all respectably large. The author is at a loss to explain the low correlation for picture C, especially in view of the near unanimity of the other three. It might be that clear sequence judgments are more difficult with "non-action" pictures.

The most natural unit of analysis is the person. In order to approach the data this way, a total score was derived for each subject by averaging his or her scores on the separate pictures. This array of total scores can be looked at two ways: comparing male and female means, or comparing the number of positive (deprivation followed by enhancement) and negative (enhancement followed by deprivation) scores for each sex. Table II presents the first comparison.

The hypothesis is strongly supported. The difference between the combined male and female means is in the predicted direction and is significant beyond the .0005 level.

The second comparison of total scores asks how many Ss revealed the predicted male (negative scores) and female (positive scores) patterns. (see Table III).

Approximately 2/3 of the Ss score in the predicted direction. It is obvious that this is not a categorical effect.

TABLE I—Reliability

| | | Picture A | Picture B | Picture C | Picture D |
|--------------|--------|-----------|-----------|-----------|-----------|
| Agreement on | N | 71 | 47 | 41 | 54 |
| Scorability | Phi | .58 | .48 | .32 | .65 |
| | ϕ | <.001 | <.01 | <.05 | <.001 |
| Score | N | 49 | 41 | 23 | 36 |
| Correlations | r | +.79 | +.77 | +.42 | +.79 |
| | ϕ | <.0005 | <.0005 | <.05 | <.0005 |

Note: N varies throughout according to the number of unscorable and doubtful stories.

TABLE II—Pattern Differences in Total Scores

| | Female | | Male | | diff. | t | p |
|-------------------------|--------|---------|------|----------|-------|-------|--------|
| | N | Mean | N | Mean | | | |
| Urban University | 38 | +0.812 | 31 | −0.221 | 1.033 | | |
| Engineering College | | | 11 | −0.276 | | | |
| Private Women's College | 22 | +0.790 | | | | | |
| All Groups Combined | 60 | +0.804* | 42 | −0.235** | 1.039 | 3.578 | <.0005 |

Note: Two males wrote four unscorable or unfinished stories in a row. Thus the total N is 102, not 104. Positive scores are predicted for females and negative scores for males.

* $\chi^2 = 2.02$

** $\chi^2 = 2.18$

TABLE III—Frequency of Positive and Negative Total Scores

| | Positive Scores | Negative Scores |
|--------|-----------------|-----------------|
| Female | 43 | 16 |
| Male | 15 | 26 |

$N = 100$, $X^2 = 11.64$, $p < .001$

There is considerable overlap, as is the case with virtually all psychological sex differences (Anastasi, 1958). The chi square is significant well beyond the .001 level. Thus the hypothesis is confirmed both by comparison of means for each sex and by analysis of the number of Ss showing the predicted pattern.

Using only average scores may obscure worthwhile information. In view of all the evidence for specific picture effects in the TAT (Murstein, 1961, 1963; Reitman & Atkinson, 1958), a separate analysis is in order. The hypothesis is confirmed for three out of the four pictures (see Table IV).

Pictures A and B perform "best," with the predicted sex difference significant beyond the .005 level. Picture C (man and woman on bench) also bears out the hypothesis, albeit not so strongly. But with picture D (child in field) there are no significant sex differences. Why does this picture fail to differentiate men and women? The most likely reason is that it features a child. There is evidence (Feshbach, Singer & Feshbach, 1963; Reitman & Atkinson, 1958) to suggest that figures of children are not very effective projective stimuli for college students. Picture D may reveal this effect: a failure

to identify with someone clearly younger than oneself and a tendency to describe childhood in stereotyped terms.

It is obvious from the means given in Table IV that the pictures used elicit different types of stories. The baseline for the sex difference shifts with each picture, so that in C, for example, both means are positive but the female mean is significantly greater than the male mean. Each picture has its own idiosyncratic baseline. Picture C is the most striking, with the overall mean shifting strongly in the positive (or female) direction. This is understandable since the picture almost dictates the mention of some past or present deprivation. The sex difference then comes in *how much* deprivation is stated and what the outcome is.

Several objections could be made to the findings at this point. In view of the evidence that women often tell stories with more sadness and unhappiness (Murstein, 1963), might we not be dealing with a simple trait of optimism or pessimism, rather than a pattern or sequence? The nature of the scoring system makes this unlikely, since the same kinds of references on both sides of the pivotal incident would cancel each other out. Nevertheless, this possibility was checked by testing for sex differences in the total number of deprivation or enhancement units used for each of the first three pictures (picture D will be dropped from further analysis since it showed no sex differences for any-

TABLE IV—Pattern Differences By Picture

| Picture | | N | Mean | S^2 | t | p |
|---------|--------|----|--------|-------|--------|-------|
| A | Male | 28 | -0.714 | 5.38 | 2.729 | <.005 |
| | Female | 47 | +0.787 | 5.27 | | |
| B | Male | 37 | -1.635 | 7.54 | 3.039 | <.005 |
| | Female | 57 | +0.009 | 5.94 | | |
| C | Male | 28 | +1.696 | 2.60 | 2.506 | <.01 |
| | Female | 46 | +2.859 | 4.44 | | |
| D | Male | 31 | +0.032 | 6.35 | -0.557 | ns |
| | Female | 48 | -0.281 | 5.68 | | |

Note: All differences are in the predicted direction except for picture D.

thing). Of these six comparisons, only one is significant. Females do use more deprivation units with picture B ($p < .02$). It thus appears that the general emotional tone of the story cannot account for the bulk of the findings. Another possible objection is that the scoring system is only reflecting a general tendency for women to use happy endings and men to use sad endings. If this is the case, then the first part of the TAT stories (i.e., before the pivotal incident) should not differ across sex. A comparison was made, using the number of enhancement units minus the number of deprivation units. A sex difference in the predicted direction (relatively more D units for women) was found in all three cases, the effect being significant with pictures A and B ($p < .05$ and $p < .025$ respectively) and marginal ($p < .10$) with picture C. More is involved than simply happy or sad endings. Only a pattern hypothesis seems adequate to the data. Also, it might be objected that verbal fluency is confounding the whole business, since women often tell longer stories than men (Murstein, 1963). Again, the counterbalanced scoring system makes this unlikely, but it was checked anyway. On only one picture (picture C) is there a significant sex difference in length of story, and for this picture the correlation between length and score is an insignificant $+ .19$. As a further check, a correlation was run between length and score on picture A. This yielded a correlation of the same magnitude ($r = + .15$, ns). Thus, length of story does not seem to be a factor, probably due in part to the nature of the scoring system.

Also in the area of verbal fluency or inclination: all Ss indicated their preferences for English or mathematics and it turns out that a preference for English over math is associated with scores farther in the predicted direction. Females preferring English have total scores significantly ($p < .05$) more positive than females

preferring math, and males preferring English have total scores significantly more negative ($p < .025$) than males preferring math. Thus, it seems that an investment (and, assumedly, ability) in verbal expression goes along with a more clear and dramatic enactment of one's own pattern, the pattern characteristic of one's own sex.

Finally, it should be noted that the hypothesis in this study concerns relative rather than absolute shifts in emotional tone. In other words, the way the scoring system is set up, a story does not have to have an absolute change from positive to negative action and feeling in order to be scored as a "male" story. A story with one deprivation unit before the P.I. and three deprivation units after, for instance, is scored -2 . Also, a story that has an enhancement unit before the P.I. and one enhancement plus one deprivation after, is scored as a shift in the negative, or male, direction. There are two reasons why the hypothesis has been stated in this broader form. First, to demand an absolute pattern difference assumes that people have a baseline of "zero" or neutral feelings. It is reasonable that people differ in whether they tend to think in positive or negative terms. This difference is not necessarily sex-linked. Thus a person who thinks largely in enhancement terms could only express the "female" pattern by having more enhancement after the P.I. than before. Secondly, the overall level of feeling depends a lot on the stimulus. Thus picture C elicits stories that consist mostly of deprivation, but women give more deprivation before the P.I., while men give more after. The difference is a relative one, but still valid. Nonetheless, it seemed advisable to see what part these "deviant" patterns (stories with only one kind of unit throughout and stories with a sum of zero on either side of the P.I.) were playing in the overall results. Out of 416 stories, there are only 58 of the first type and 73 of the second type. And

the means for these stories suggest that they are not contributing to the overall sex differences, since the mean difference between male and female stories with only one kind of unit is considerably smaller than the difference for all stories (0.404 versus 1.039) and the mean difference between male and female stories with a sum of zero on either side of the P.I. is in a direction contrary to the hypothesis.

DISCUSSION

Men in this study tended to see any decline or fall as abrupt, total and final. The possibility of a resurgence or second chance, which is implicit in the female pattern, does not seem very real for males. Perhaps an important meaning of the pattern difference in fantasy is that women can lose (or give up) control without panic—they are confident of recovery in the face of failure or suffering. The male, on the other hand, may be more prone to see any loss of conscious ego control as total and absolute ("once you slip, it's all over").

This approach can be followed on several levels. On the simplest physical level, one would expect women to show "an ability to stand (and to understand) pain as a meaningful aspect of human experience in general, and of the feminine role in particular." (Erikson, 1964, p. 594). And, going a few steps further, what about death, the ultimate deprivation or "fall?" Murray (1955) cites a desire for immortality as part of the Icarian syndrome, and one would suspect that many men, especially when young, see death as the final and total collapse. The case may be very different for women. McClelland (1963b) has suggested that death has connotations of seduction for many women and that they are, if not excited and attracted by it, at least ambivalent. Greenberger (1965) lends support to this with her finding that critically ill women give more fantasy references to illicit sexuality ("death as lover") than do

women hospitalized for minor complaints. This type of phenomenon can reveal itself strikingly in case studies. A young woman reports that one of her earliest memories is: "An older man tickling me on a big bed in the apartment upstairs. I thought I was going to die if he didn't stop. The implications were definitely sexual even then."⁵ Another woman states that "around age 9 or 10 the idea of hanging by the neck inspired sexual stimulation," and she goes on to report trying to hang herself with her father's necktie.⁵ Deutsch also reports cases of women for whom losing consciousness, or being tied up, caused intense excitement and arousal (e.g., 1944, vol. 1, p. 176 and p. 344).

All these experiences (pain, death, loss of consciousness, being bound) fit within the category of "deprivation" as it has been used in this study. Thus the expectation that women can see these experiences as leading to an exciting result is fully in line with the fantasy pattern that has been reported on. But some of the qualitative factors which were evident suggest that a broader interpretive framework would be useful. TAT stories written by women seem to be much less focused on the "here and now" reality than stories written by men. Females tend to include more often such phenomena as dreams, fantasy, forgetting, prayer and memory. These elements seem to represent, in the most general sense, shifts in the level of psychic functioning. If one takes conscious, action-oriented, ego functioning as the norm, then all the experiences which have been singled out above (death, loss of consciousness, captivity, grief, fantasy, recollection, and perhaps even pain or fear) can be seen as alteration phenomena. In this light the hypothesis would be that women are more likely to tolerate, or make use of, shifts in level of psychic functioning.

⁵ Personal communication, Dr. Arthur Couch, Harvard University, June, 1964.

This kind of sex difference even holds true in psychosis. Distler, May and Tuma (1964) report that male schizophrenics who get better are characterized by high scores on Barron's Ego Strength scale and low scores on Taylor's Manifest Anxiety scale. In contrast, female schizophrenics who improve have high manifest anxiety and low ego strength. The authors conclude that the female role permits "giving up" and the frank admission of symptoms, while males must maintain a facade of strength and control even under the onslaught of schizophrenia. Thus it is more appropriate, and more beneficial, for women to give themselves over to this radically altered state of consciousness, while men fare best when they attempt to retain their "normal" mode of ego functioning.

Within this broader framework, the sex difference in fantasy patterns which was the original focus of this study takes on another meaning. The categories of "deprivation" and "enhancement" seem to have been defined with the typical male mode of functioning as the implicit norm. The resultant patterns can then be seen as indicating that women can see these "deprivations," or shifts away from the mode of conscious ego control, as ultimately beneficial, while the male is more likely to see them as "lapses," or as leading to catastrophe, the beginning of the end. Because of the nature of the pictures used in this study, most stories contained some incidents of "deprivation," but both quantitative and qualitative factors indicate that males have less tolerance for this than females do. "Giving up" or suffering has overtones of finality for men, whereas for women it can be a means to an end, almost an opportunity. Or so it appears in fantasy.

REFERENCES

- Anastasi, A. *Differential psychology*. New York: Macmillan, 1958.
- Barry, H., Bacon, M., & Child, I. A cross-cultural survey of some sex differences in socialization. *Journal of Abnormal and Social Psychology*, 1957, 55, 327-332.
- Deutsch, H. *The psychology of women*, vols. 1 and 2. New York: Grune and Stratton, 1944.
- Distler, L., May, P., & Tuma, A. Anxiety and ego strength as predictors of response to treatment in schizophrenic patients, *Journal of Consulting Psychology*, 1964, 28, 17-177.
- Erikson, E. Sex differences in the play configurations of preadolescents, *American Journal of Ortho-psychiatry*, 1951, 21, 667-692.
- Erikson, E. Inner and outer space: reflections on womanhood, *Daedalus*, Spring, 1964, 582-606.
- Federn, P. Dreams of flying, in Fliess (Ed.), *The psychoanalytic reader*. New York: International Universities Press, 1948, 352-356.
- Feshbach, S., Singer, R., & Feshbach, N. Effects of anger arousal and similarity upon the attribution of hostility to pictorial stimuli, *Journal of Consulting Psychology*, 1963, 248-252.
- Friedman, B. *The feminine mystique*. New York: Norton, 1963.
- Fromm, E. Sex and character, *Psychiatry*, 1943, 6, 21-31.
- Freud, S. The economic problem in masochism, *Collected papers*. New York: Basic Books (1959), 1924a, vol. 2, 255-268.
- Freud, S. The passing of the oedipus-complex, *Collected papers*. New York: Basic Books (1959), 1924b, vol. 2, 269-276.
- Freud, S. Some psychological consequences of the anatomical distinction between the sexes, *Collected papers*. New York: Basic Books (1959), 1925, vol. 3, 186-197.
- Freud, S. Female sexuality, *Collected papers*. New York: Basic Books (1959), 1931, vol. 3, 252-272.
- Freud, S. *The psychology of women*, *New Introductory Lectures*. New York: Norton, 1933, 153-185.
- Greenberger, E. Fantasies of women confronting death: a study of critically ill patients, *Journal of Consulting Psychology*, 1965, 29, 3, 252-260.
- Johnson, W., & Terman, L. Some highlights in the literature of psychological sex differences published since 1920, *Journal of Psychology*, 1940, 9, 327-336.
- Kagan, J., & Moss, H. *Birth to maturity*. New York: Wiley, 1962.
- McClelland, D. Do women differ psychologically from men? Unpublished paper, Center for Research in Personality, Harvard University, 1963a.
- McClelland, D. The harlequin complex, in White (Ed.), *The study of lives*. New York: Atherton, 1963b, 94-119.
- McClelland, D. Wanted: a new self-image for women, in R. J. Lifton (Ed.), *The woman*

- in America. Houghton Mifflin, Fall, 1965, 173-192.
- Murray, H. American Icarus, in Burton & Harris, *Clinical studies of personality*. New York: Harper, 1955, 615-641.
- Murstein, B. The role of the stimulus in the manifestation of fantasy, in Kagan & Lesser (Eds.), *Contemporary issues in thematic apperceptive methods*. Springfield, Ill.: Charles C. Thomas, 1961, 229-273.
- Murstein, B. *Theory and research in projective techniques*. New York: J. Wiley and Sons, 1963.
- Parsons, T., & Bales, F. (Eds.), *Family, socialization and interaction process*. New York: Free Press, 1955.
- Pratt, K. The neonate, in Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1946.
- Rabban, M. Sex-role identification in young children in two diverse social groups. *Genetic psychology monographs*, 1950, 41, 81-158.
- Reitman, W., & Atkinson, J. Some methodological problems in the use of thematic apperceptive measures of human motives, in Atkinson (Ed.), *Motives in fantasy, action and society*. Princeton, N. J.: D. Van Nostrand, 1958, 664-683.
- Rossi, A. Equality between the sexes: an immodest proposal, *Daedalus*, Spring, 1964, 607-652.
- Terman, L., & Tyler, L. Psychological sex differences, in Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1946.
- Tyler, L. *The psychology of human differences*. New York: Appleton Century Crofts, 1956.
- Veroff, J. Thematic apperception in a nationwide sample survey, in Kagan & Lesser (Eds.), *Contemporary issues in thematic apperceptive methods*. Springfield, Ill.: Charles C. Thomas, 1961, 83-111.
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- Received June 17, 1966
Revision received September 19, 1966

Cultural Symbols and Response to Thematic Test Materials¹

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Summary: Drawing upon both clinical and anthropological perspectives this study was developed as a demonstration of the constraining effects upon responses to thematic projective material of structural elements involving shared cultural meanings. By comparing a modified TAT card with the original it was shown that variations in component features of the cards produced notable variations in social-cultural classifications that could be expected to have important implications for their use. These implications are discussed in terms of the need to separate individual "personality" characteristics from "cultural habits" in the assessment of cultures as well as of personality.

It is of more than passing interest that two of the groups most devoted to the use of projective techniques employ them for quite distinct purposes. Clinical psychologists use them, it is commonly asserted, to get at so-called "deeper" levels of personality in order to illuminate characteristics of the person that distinguish him from others. On the other hand, anthropologists, and others working in the culture-behavior area, make use of projective procedures as a basis for adducing characteristics of a culture. Their concern is not with the "respondent" as a particular individual, but as an "informant" from whose projective responses may be inferred elements of a culture he is presumed to represent. In short, the anthropologist is interested mainly in shared behaviors, while the clinical psychologist is interested in unshared ones.

The fact that both groups seem more or less satisfied with the results of projective operations suggests that both shared and unshared patterns are generated by the techniques employed — possibly both at the same time. By itself, of course, this observation hardly qualifies as a penetrating insight. Clinical psychologists have long been aware of the fact that projective responses reflect characteristics of the stimulus material as well as attributes

of the person. Scoring Rorschach performances for "form-quality" clearly ties the response to the stimulus material. And the Rorschach "popular" and Rosenzweig's TAT norms illustrate the same awareness of the influence of stimulus material upon the projective response. Even more to the point of the present paper are adaptations like the CAT and the Thompson version of the TAT for Negroes that attempt to adapt the *content* of projective materials to "cultural" features of the subjects to whom they are to be administered. Following in the same vein, persons engaged in cross-cultural research have frequently adapted materials to the needs of the group under study and, speaking to the other side of the question, anthropologists have been sensitive to the contamination of generalizations about cultural patterns traceable to idiosyncratic test responses by their subjects.

Given this general recognition of the issues it is quite surprising that so little has been done to explore systematically coordinations between the materials used projectively and the productions of subjects to them. Baughman's survey (1958) documents this point and also highlights the fact that the research that has been done on "stimulus" aspects of projective instruments has practically never dealt with the facet of the question addressed here. What interested us was not so much the role of stimulus factors in a

¹A version of this paper was read at the Midwestern Psychological Association, Chicago, Ill., May, 1963.

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structural sense, but rather the *meanings* that stimulus elements may convey, especially as these may be germinated and standardized within a cultural system working as a dynamic, though implicit, network of influences upon behavior.

Briefly, it seemed likely to us that projective stimulus patterns, particularly those like the TAT that depict persons in simulated, more or less "real-life" settings, are apt to include a variety of cultural and sub-cultural symbols and other culture-linked features. These "cultural loadings" then can act as signals evoking responses mediated by shared cultural meanings. As a result the perceived meaning of the stimulus material will tend to be given independently of any effects of individual personality and may even make difficult the expression of individual attributes, as Howard's study (mimeo) of successive TAT administrations suggests. In other words, we surmised that the persons and situations pictured in thematic stimulus material would be perceived within a larger social-cultural symbol system so that perception of the material would vary with its symbolic content.

Procedure

A single selected TAT card can serve as an effective demonstration of this effect. Card 12F is an especially useful one for illustrative purposes because of its relative simplicity. This picture consists only of two women; there are no other components in the picture, major or minor, to complicate matters. In the foreground is a younger woman gazing off to her left and directly behind her is an older, wizened-looking crone wearing what appears to be a shawl of some sort about her head. Our interest focuses upon the younger foreground figure.

By submitting the card for commentary to a commercial artist and to several "naive" respondents, we obtained the following evaluations of the card, taking the artist first: The very man-

nish haircut, popular in the 1920's, gives an outdated and/or "careless" (in the sense of concern with "femininity") appearance to the woman. Heavy, dark brows, greatly accented eyelids and shadows under the eyes create an impression which commercial artists employ only to convey "sadness, sorrow, gloom, etc." The cupid's-bow mouth also lends a dated appearance. Shadows under the lips, at the chin line, and at the corners of the mouth, give the lips a sullen aspect. General appearance is quite masculine, drab and dowdy.

"Naive" respondents characterized the figure thus: "She looks like a games mistress at a very strict school"; "Reminds me of a prison matron"; "Probably a lesbian."

In sum, then, the foreground figure was regularly viewed as old-fashioned, unfeminine, a bit forbidding, and generally not very appealing. From this base we proceeded to prepare a revision of this TAT card against which we could compare the original. In the revised card the younger woman was rendered so as to conform closely to stereotypic commercial representations of an attractive (though not sexy), young, "modern" woman. The old crone was unchanged.

It was presumed that this change would produce certain quite specific effects upon Ss' perceptions of the card. In particular we expected differences, when responses to the two cards were compared, both in social-cultural identifications of the foreground figure and in perceptions of the social relations between the two figures.

To gather data for the study both the original and the revised cards were shown, along with several others, to two different, but quite comparable groups each of 39 undergraduate college students. The group viewing the original card consisted of 25 males and 14 females, and the group that saw the revised card contained 27 males and 12 females. The pictures were projected onto a screen for a standard four-

minute interval and the Ss, in a group, recorded their responses to the picture on a check-list, the general nature of which can be inferred from Table I.

Results

The results of the study are self-evident from Table I. The two cards produced very different social-class identifications, different perceptions of degree of acculturation, and distinct differences in the perceived relations between the figures. Moreover, though the *N*s did not permit statistical test, there appear to be no important departures when the data are broken down by sex. It is worth mentioning, perhaps, that we are not casting our vote for the revised card as a "better" one than the original. We are only interested in the fact that the two cards are responded to differentially and thereby demonstrate the thesis sketched earlier.

Discussion

The results of this modest investigation proffer some intriguing possibilities for further research. At a macroscopic level there is the question of whether the kinds of *stories* produced, say, to the two cards discussed here will show differences. Clearly they should. Our ideas in the matter are that the meanings keyed-off by the symbolic qualities of the card will have to be accommodated somehow in the stories which the person tells. That is, for example, if a person in a picture is perceived to be middle-class, that fact will some way have to be accounted for in any story he constructs, as will any other considerations that follow from a given social position classification. As a result certain potential stories (albeit, perhaps, a rather large range of them) will become more

TABLE I—Comparisons of Responses to Original and Revised TAT Card (12F)

| Questionnaire Item | Orig. Total | Rev. Total | Orig. Male | Rev. Male | Orig. Female | Rev. Female |
|---|----------------|---------------|---------------|--------------|-----------------|----------------|
| (1) Is the woman in the foreground a secretary | 7 | 11 | 2 | 7 | 5 | 4 |
| professional person | 2 | 13 | 1 | 7 | 1 | 6 |
| factory worker | 7 | 0 | 5 | 0 | 2 | 0 |
| middle-class housewife | 16 | 15 | 12 | 13 | 4 | 2 |
| unemployed slum dweller | 4 | 0 | 3 | 0 | 1 | 0 |
| gym teacher | 1 | 0 | 1 | 0 | 0 | 0 |
| seasonal farm laborer | 2 | 0 | 1 | 0 | 1 | 0 |
| Note: Combining these into two groups (A = secretary, professional, teacher, housewife; B = worker, slum dweller, farm laborer) yields a middle-class-lower-class split (Orig. : Rev.): A = 26:99, $X^2 = 15.60$; B = 13:10, $P < .01$ | | | | | | |
| (2) Is the woman in the foreground at least 3rd generation American | 13 | 29 | 8 | 20 | 5 | 9 |
| first generation American | 21 | 5 | 14 | 3 | 7 | 2 |
| an immigrant to America | 5 | 5 | 3 | 4 | 2 | 1 |
| Note: $X^2 = 15.18$; $P < .01$ | | | | | | |
| (3) The woman in the background is her mother | 7 | 2 | 5 | 2 | 2 | 0 |
| her grandmother | 11 | 5 | 8 | 4 | 3 | 1 |
| a neighbor | 1 | 1 | 0 | 0 | 1 | 1 |
| someone she is thinking about | 13 | 17 | 8 | 13 | 5 | 4 |
| a stranger she talks to . . . | 3 | 1 | 2 | 1 | 1 | 0 |
| not connected with first woman | 4 | 13 | 2 | 7 | 2 | 6 |
| Note: Combining these into two groups (A = mother, grandmother, neighbor; B = mental image, stranger, no connection) yields a close-distant split (Orig. : Rev.): A = 19:8, $X^2 = 1.86$; B = 20:31, $P < .01$ | | | | | | |
| (4) Is the woman in the foreground married | 22 | 22 | 14 | 16 | 8 | 6 |
| single | 13 | 10 | 8 | 8 | 5 | 2 |
| engaged | 0 | 5 | 0 | 2 | 0 | 3 |
| an old maid | 4 | 2 | 3 | 1 | 1 | 1 |
| Note: $X^2 = N.S.$ | | | | | | |

probable and others less so.

At a somewhat more microscopic level, there are numerous interesting problems. Probably the most obvious of these have to do with further examination of the meaning loads carried by structural components of projective materials. In analyses like the one described here we have so far found these to be many and varied, and often to be associated with what might at first glance seem to be among the most minor elements within a picture (for instance, doorknobs, necklines on dresses, hairdos, flowers on a table, books on a shelf, etc.).

Tying in with the foregoing are a variety of questions concerning Ss' responses to whatever material is analyzed. For instance, calling to mind the reasons motivating the production of the CAT and the Thompson modification of the TAT, what are the effects of presenting to a lower-class subject stimulus material containing heavy middle-class symbolic loadings? Also, if a given projective picture contains, say, both lower and middle-class signals, will this "conflict" reflect itself in the thematic productions it elicits, and/or will these be occupied with themes implicitly or explicitly directed toward resolution of the "structural conflict," and to what degree might they express conflict that is interpretively confused with intrapsychic processes?

In closing it is worth mentioning

that the data and ideas presented here are, in a small way, consistent with and supportive of Kaplan's (1961) suggestion, based upon his critique of uses of projective methods in culture-personality studies, that thematic test productions are likely to be descriptive of the culture as well as of the person and that it is crucial, for more than one reason, to know the extent to which this is true in any given study. Not only may this state of affairs yield a distorted view of the individual personality by its confounding with "cultural habits" (to use Kaplan's term), but when projective instruments are used to study personality-culture relations, it may produce a grossly inflated impression of personality homogeneity within a culture. In short, it is of no little moment to know when one is studying cultural habits and when one is viewing individual personality expressions.

REFERENCES

- Baughman, E. E. The role of the stimulus in Rorschach responses. *Psychol. Rev.*, 1958, 55, 121-147.
- Howard, K. I. Differentiation of individuals as a function of repeated testing. Mimeo.
- Kaplan, B. Cross-cultural use of projective techniques. In F. L. K. Hsu (Ed.), *Psychological anthropology*. New York: Dorsey, 1961. Pp. 235-255.
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Received July 5, 1966

Power Themes in the TAT Stories of Paranoid Schizophrenic Males¹

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Summary: Theoretical emphasis on the role of power concerns underlying paranoid symptomatology led to the development of a scheme for scoring power imagery on the TAT. Manifestations of power concerns were broadly defined as depicted deficits or surpluses of personal resources which were related to masculine self-esteem, such as physical strength, social influence, etc. TAT protocols of 100 patients admitted to a VAH Psychiatric Services were scored for the presence or absence of power concerns. As predicted the paranoids' stories contained significantly more power imagery than those of the non-paranoid controls. Possible reasons for the scoring scheme not differentiating as well for certain diagnostic groups were discussed.

On the basis of a number of psycho-analytic clinical and theoretical contributions a number of characteristic concerns with the issue of power was hypothesized as central to the psychodynamics of paranoid symptomatology.

Although Freud (1950a) suggested that the central motive underlying paranoid symptoms was a vigorous defense against homosexual wishes, his analysis of the basis of those wishes emphasized a defensive involvement. A fear of the father resulted in a submissive retirement from conflict and competition with him through a renunciation of women and seeking refuge in men. This solution however implied castration which led to retaliatory hostile wishes and a chronic state of conflict with men.

Eidelson (1945) described a paranoid patient who was enabled to engage in heterosexual relations only when the therapist, playing the role of a strong father figure, gave him permission to do so. This supports Freud's (1950b) contention that, "In his imagination women belonged to the father and he sought refuge in men out of submission, so as to 'retire from the conflict' in favor of the father (p. 216)."

Nunberg (1938) discerned, in the paranoid's homosexual involvement, both a wish to absorb the male object's strength and a feared wish to aggressively defeat him. This conflict was founded on the patient's early history of insult to his masculine self-esteem coupled with the perception of his father withholding his resources from him.

Knight (1940) found the paranoid's conflict with the father to be so intense that the paranoid feared both destroying and being destroyed by him.

Ovesey's (1955) analysis of paranoid homosexuality is based on the assumption of early severe defeats in power struggles within the family, especially with other males, resulting in a self-perceived power deficit. The extreme hostility generated in the course of these experiences remains undischageable for fear of retaliation. Resulting chronic feelings of inadequacy as a male lead to dependency on perceived male power figures which is expressed through all modes including the sexual. Such men are likely to feel unattractive to women and unable to fulfill competitive aspects of the male role which contributes to an underlying conviction that one is homosexual.

These contributions led to the hypothesis (Wolowitz, 1961; 1965) that male paranoids had in intense ap-

¹The authors are grateful to Dr. Dorothy Marquis and Dr. Rosalie Ging of the Ann Arbor V.A.H. whose generous cooperation made this study possible, and to John De May for his assistance in the research.

proach-avoidance conflict in regard to other males perceived as powerful. Evidence (Wolowitz, 1965) was presented that confirmed this hypothesis. Male paranoids, in contrast to a control group of non-paranoid schizophrenics, responded to increments in the power of male figures presented to them, but did not respond to similar increments in the power of females. However, no direct evidence was offered in support of the general contention that male paranoids manifest greater involvement in power concerns than other men.

It seemed apparent that data pertinent to this hypothesis could be obtained from TAT stories. Since paranoid symptomatology is described in the model as either a direct reflection of power deficit (e.g., delusions of being the victim of a more powerful persecutor; thoughts of one's sexual partner being gratified by a more potent male) or as a compensatory attempt to remedy power deficiencies (e.g., delusions of grandeur), it was predicted that male paranoids' TAT stories would reflect much greater concern with power than other male psychiatric patients.

METHOD

A number of cases were selected from the files of a Veterans Administration Hospital's psychology service to whom a number of psychological tests had been routinely given soon after admission, including at least a TAT and an intelligence test (the WAIS). These tests had been administered over a number of years by many different testers who had no knowledge of the author's hypothesis concerning power and paranoid symptomatology.

Veroff's (1958) scheme for scoring stories for power elicited by TAT-like cards was tried on a sample set of stories. However, Veroff's criteria for scoring power themes elicited by a specially selected set of cards were found to apply to too few of the stories told to the Murray TAT cards

by this particular population of Ss. Consequently, a new coding scheme for scoring power themes was developed based on a broader definition of power than employed by Veroff in his work with candidates seeking office on a college student government. This broader conceptualization considered power concerns to be represented by the depiction of a person with either a surplus or deficit of some resource related to masculine self-esteem (e.g., physical strength, wisdom, talent, sexual potency, etc.) or by a situation involving a relative inequality in the distribution of such a resource. The following are examples of the criteria used to score a story for the presence or absence of power concerns:

1) A story is scored for power if it involves either physical, moral or mental assistance, help, aid, support, etc., whether requested or not. Power is not scored if there is an exchange of aid or if the two people are helping each other. An example of such a story scored for power is the following told to Card 7BM. "Probably the younger person had been in some kind of crime in a lighter degree where the older person is trying to help him in some spiritual or mental force. Giving him advice. From the advice the older person is giving him, this might come under control."

2) A story is scored for power if it depicts a culturally defined superior-subordinate status relationship in which the superior is in control of the means of influencing a subordinate. An example is the following story told to Card 7BM. "Well these people happen to be at an important meeting . . . diplomatic meeting . . . affairs of state, and somebody on the other side has said something important. And so the gentleman has to counteract this move and he calls on his assistant. The older man looks kind of nice and maybe he's told his assistant to find out the secret so he can fight off the attack."

3) A story is scored for power if someone is depicted as made or forced to do something which he otherwise would not be doing. Likewise, a story is scored for power if a person is depicted as exposed to such influences. The following story told to Card 1 is an example. "Well . . . seems like this little boy he's taking music lessons, and he's trying to play that instrument. He seems like he don't want to. Seems like someone is making him take lessons against his will, and he's just sitting there."

4) A story is scored for power when a person is depicted as having a deficit or surplus in any of the following resources — physical strength, social influence, wealth, special abilities, intelligence, etc. The following such story was told to Card 17BM. "Very muscular fellow. An athlete in training for something. A trapeze artist seeming to put a lot into his work, whatever he is climbing there. He must be happy in his work or he wouldn't be doing it. From the build, the muscles, he must have been doing it for quite a while. Probably instructs others with the physical condition he's got."

The following story told to Card 3BM depicts in these areas and is also scored for power. "I'd say maybe she's lost a friend or something. Broke down and cried, needs help. She must be hurt in some way or another. Somebody will have to give her attention or help in some way."

A code manual was constructed (Shorkey and Wolowitz, 1964) and tested for interscorer reliability. While stories were often told which qualified to be scored for power under more than one criterion, they were scored only once for the presence of power concerns. On an unselected sample of stories scored for the absence or presence of power imagery the following percentages of agreement were obtained between three scorers: 1) Scorers A and B — 81% agreement, 2) Scorers A and C — 80%

agreement, 3) Scorers B and C — 80% agreement.

All stories of the Ss constituting the obtained sample were scored by the authors without knowledge of the S's diagnosis. The stories of 4 Ss were discarded because they were considered too brief or incomplete to score. They typically amounted to a phrase or sentence per story.

In order to establish which cards were proficient in eliciting power themes, the mean frequency of power stories told to each card by all Ss was calculated. Only cards given to at least 25% of the Ss were considered. This group included cards numbered 1, 2, 3BM, 4, 5, 6BM, 7BM, 8BM, 9BM, 10, 11, 12M, 13B, 13MF, 14, 17BM, and 18BM. Of these 17 cards, the highest 8 in mean frequency of power elicited stories were chosen on which to compare the paranoid and non-paranoid control groups. This group of TAT cards included those numbered 1, 7BM, 8BM, 11, 12M, 13MF, 17BM, and 18BM in the Murray series.

The diagnostic impressions of each S based on psychiatric interviews recorded independently of and previous to the present study were then utilized to form the experimental and control groups; Paranoid or Paranoid Schizophrenic (N=33) and Non-Paranoid (N=67). The Non-Paranoid control group was composed of the following: Anxiety Reaction (N=15), Passive-Aggressive Personality (N=7), Psychophysiological Reaction (N=6), Non-Paranoid Schizophrenic (N=11), Depression and Schizo-Affective Disorder (N=15) and "Others" (N=13). The majority of Ss in the "Others" category were diagnosed as Borderline. A number of Ss whose diagnosis was uncertain in respect to the presence of paranoid symptomatology were excluded (N=19).

Information was also obtained from each S's file on the following variables to insure that any possible differences obtained on the frequency of

TABLE I — Differences between Paranoids and Non-Paranoids on Control Variables

| | Paranoids (N = 33) | | Non-Paranoids (N = 67) | | C.R. | p |
|---------------------|-----------------------|------|---------------------------|------|------|-----------|
| | Mean | S.D. | Mean | S.D. | | |
| Education | 11.3 | 3.2 | 10.6 | 2.7 | 0.98 | N.S. |
| Age | 35.2 | 11.0 | 36.5 | 8.4 | 0.61 | N.S. |
| Intelligence | 105.0 | 13.0 | 100.9 | 13.9 | 1.38 | N.S. |
| MMPI Pa Scale Score | 15.8 | 3.4 | 12.2 | 5.8 | 3.6 | $p < .01$ |

power themes would not be due to extraneous factors such as education, age, intelligence, religion, race, occupational status or marital status. Since MMPI scores were available for many of the Ss, the Pa Scale score was also recorded as an additional criterion of the difference between the experimental and control group in respect to the presence and absence of paranoid tendencies.

RESULTS

The Paranoid group was not significantly different from the Non-Paranoid group on the attributes of race (Ss were white in both groups), marital status (about 85% of the Ss were married in both groups), religion (about 67% were Protestants and 33% Catholics in both groups), or occupational level (most Ss were either semi-skilled or unskilled blue collar workers). The respective group means and significances of the other control variables are presented in Table I. The Paranoid group was not significantly different from the Non-Paranoid group on any of these remaining variables either with the exception of a significant difference in the expected direction on the MMPI Pa Scale (i.e., Paranoids have a significantly higher Pa Scale score).

Table II indicates the association between the presence or absence of power themes in the TAT stories of the Paranoid Ss as compared to the Non-Paranoid Ss. As predicted, Paranoids express significantly more power themes in their TAT stories than the Non-Paranoids.

Since the Non-Paranoid group was fairly large, it was sub-divided into

TABLE II — Differences in the Incidence of Power Imagery in the TAT Stories of Paranoids and Non-Paranoids

| | TAT Stories Scored Power Absent | TAT Stories Scored Power Present |
|---------------------------|--|---|
| Paranoids (N = 33) | 39 | 110 |
| Non-Paranoids (N = 67) | 135 | 192 |

Note. $\chi^2 = 10.05$, $p < .005$, 1 df, 1 tailed

differentiated diagnostic categories to see whether the greater incidence of power imagery in the TAT stories of Paranoids is greater than in each of the other specific syndromes. These results are presented in Table III.

The results of Table III clearly indicate that Paranoid Ss express a significantly greater number of power themes in their TAT stories than do Ss classified as Anxiety Reaction, Psychophysiological Reactions or Non-Paranoid Schizophrenics respectively. The hypothesis that Paranoid Ss express power themes in their TAT stories more often than Ss classified as Passive-Aggressive, Depressive or Schizo-Affective Disorder and "Others" is supported, but the null hypothesis is rejected with less confidence.

DISCUSSION

The hypothesis that Paranoids are significantly more concerned with the issue of power than other psychopathological patients was supported by the data obtained in this study. The absence of other differences between Paranoid and Non-Paranoid Ss on the control variables lends further support to the notion that the ob-

TABLE III — Differences in the Incidence of Power Imagery in the TAT Stories of Paranoids and Specific Control Groups

| Diagnostic Group | TAT Stories Scored | | Significance of the Difference between Paranoid and Control Group |
|--|--------------------|---------------|---|
| | Power Absent | Power Present | |
| Paranoid Schizophrenic (N = 33) | 39 | 110 | |
| Anxiety Reaction (N = 15) | 35 | 39 | $\chi^2 = 9.95, p < .005, 1 \text{ df}, 1 \text{ tailed}$ |
| Passive Aggressive (N = 7) | 13 | 22 | $\chi^2 = 1.68, .10 > p > .05, 1 \text{ df}, 1 \text{ tailed}$ |
| Psychophysiologic Reaction (N = 6) | 18 | 12 | $\chi^2 = 13.16, p < .005, 1 \text{ df}, 1 \text{ tailed}$ |
| Non-Paranoid Schizophrenic (N = 11) | 20 | 28 | $\chi^2 = 4.15, p < .025, 1 \text{ df}, 1 \text{ tailed}$ |
| Depressive & Schizo-Affective (N = 15) | 24 | 49 | $\chi^2 = 1.08, .20 > p > .10, 1 \text{ df}, 1 \text{ tailed}$ |
| "Others" (N = 13) | 25 | 41 | $\chi^2 = 2.16, .10 > p > .05, 1 \text{ df}, 1 \text{ tailed}$ |

tained differences in regard to power concerns are related to the presence or absence of paranoid symptomatology.

While Paranoids surpassed all other nosological groups in respect to the incidence of power themes, their greater concern was relatively less pronounced in comparison with Depressives, Schizo-Affectives, Passive-Aggressives and "Others". The reasons for the smaller differences between the Paranoids and these groups may likely be due to the following: 1) The groups labeled "Others" was composed mostly of patients diagnosed as borderline. Since classification of a patient as borderline is not mutually exclusive of paranoid symptomatology, this group may have had a number of borderline Paranoids in it, 2) Inspection of the stories of the Depressives and Schizo-Affectives gave the impression that these patients' stories, unlike Paranoids, were often scored for power on only certain characteristics (e.g., themes of ineffectiveness) also closely related to depression and passivity. However, in order to examine this possibility more closely, it is necessary to design a special set of cards with varying types of power cues. The stories elicited by such cards are likely to be more detailed in re-

spect to power so that the differentiation of those attributes characteristic of power themes of Paranoid Ss from those characteristic of Depressives and Schizo-Affectives could be made, 3) A somewhat similar line of reasoning may apply to the Passive-Aggressives since aggressive themes are sometimes scored for power when the emphasis is on the power involved.

While these explanations are most certainly post hoc, they are consistent with clinical observations.

Particularly important is the suggested set of TAT-like cards specifically designed to elicit stories which could be scored for details that would enrich and inform the basic conceptualizations. Such inferences about power concerns would involve conscious vs. denied aspects of the self, notions about the distributability of power, concepts concerning the hierarchy of importance of various power spheres to masculine self-esteem and their substitutability, etc. While it is occasionally possible to make such inferences from stories told to TAT cards, it would be made possible on a more regular basis.

REFERENCES

- Eidelson, L. Psychoanalysis of a case of paranoia. *Psychoanalytic Rev.*, 1945, 32, 373-402.

- Freud, S. Psychoanalytic notes upon an autobiographical account of a case of paranoia (1911). *Collected Papers*, Vol. 2. London: Hogarth, 1950 (a).
- Freud, S. The psychogenesis of a case of homosexuality in a woman (1920). *Collected Papers*, Vol. 2. London: Hogarth, 1950 (b).
- Knight, R. P. The relationship of latent homosexuality to the mechanism of paranoid delusions. *Bull. Menninger Clinic*, 1940, 4, 149-159.
- Nunberg, H. Homosexuality, magic, and aggression. *Internat. J. Psychoanal.*, 1938, 19, 1-16.
- Ovesey, L. Pseudohomosexuality, the paranoid mechanism and paranoia. *Psychiatry*, 1955, 18, 163-173.
- Shorkey, C. & Wolowitz, H. M. Manual for scoring power in TAT stories. Unpublished manuscript, 1964.
- Veroff, J. Development and validation of a projective measure of power motivation. In J. Atkinson (Ed.) *Motives in Fantasy, Action, and Society*. Princeton: Van Nostrand, 1958.
- Wolowitz, H. M. Attraction and aversion to power: a conflict theory of homosexuality in male paranoids. Unpublished doctoral dissertation. University of Michigan, 1961.
- Wolowitz, H. M. Attraction and aversion to power: a psychoanalytic conflict theory of homosexuality in male paranoids. *J. Abnorm. Psychol.*, 1965, 70, 360-370.
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Revision received July 20, 1966

The Blacky Test and Psychoanalytic Theory: Another Factor-Analytic Approach to Validity

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Summary: Blum's original tetrachoric correlation matrices for 13 Blacky dimensions were subjected to principal component analysis and the resulting factors rotated using Kaiser's varimax criterion, a technique not generally available when Neuman and Salvatore (1958) factor analyzed Blum's (1949) data. For males the results were similar to those of Neuman and Salvatore. However, a separate factor of Guilt Feelings was found in this study. Four levels of psychosexual development (oral, anal, phallic and genital) were found for females. These levels were relatively free of the contradictions discussed by Neuman and Salvatore, suggesting that psychoanalytic theory and the Blacky may be more congruent with female psychosexual development than was thought in the past.

While planning a research project involving adolescent males and females, Robinson encountered two questions pertaining to the potential use of the Blacky Test along with other instruments: To what extent are the basic dimensions of the Blacky Test congruent with those dimensions indicated by psychoanalytic theory? To what extent are the dimensions derived from the Blacky Test congruent for males and females? These and similar questions have been treated elsewhere (Blum, 1949, 1950; Blum & Hunt, 1952), but the work of Neuman and Salvatore (1958) seemed most relevant to the proposed research. Closer examination of the study revealed certain deficiencies. Therefore, before proceeding further with the proposed research, more adequate answers were sought to these two basic questions using Blum's original data, but employing different techniques.

METHOD

Blum's tetrachoric correlation matrices of the 13 Blacky dimensions for 119 males and 90 females (Blum, 1949; Neuman & Salvatore, 1958) were subjected to principal component analysis which is time consuming if adequate computer facilities are not available. This technique was not in

general use by academicians at that time due to the general unavailability of adequate computing equipment. The resulting factors were then rotated using Kaiser's varimax criterion (Kaiser, 1958, 1959), which was also not generally available at the time of Neuman and Salvatore's study.

No adequate test exists for the number of factors to be extracted from a matrix by the complete centroid method which was used by Neuman and Salvatore. For principal component analysis, which places 1.0 in the diagonal of the matrix, eigenvectors with eigenvalues equal to or greater than 1.0 are used to limit the number of factors. Principal component analysis accounts for a greater proportion of the total variance with the least number of factors, since the initial arbitrary dimensions are selected in the order in which they account for the greatest amount of variance in the original variables. This is indicated in Table I which compares the principal component-varimax analyses with the centroid-oblique analyses. Also, the factors determined by principal component-varimax analyses account for a larger proportion of the total variance individually, and the proportion of variance attributable to each factor is more nearly

alike. For example, the largest of the six factors derived from analysis of the correlation matrix for males accounts for 16% of the total variance and the smallest factor accounts for 8%. The corresponding centroid-oblique analysis yields a largest factor which accounts for 14% of the total variance and a smallest factor which accounts for 2% of the variance. The communalities for the principal component-varimax analyses are also higher, as examination of Tables II, III, and IV indicate.

The varimax criterion, which attempts to simplify the structure of each factor, normally results in large and small loadings (absolute values) on a given factor, with few moderate loadings. This makes the interpretation of each factor less confusing and results in loadings that are usually either clearly significant or not significant, statistically. For factors produced from the matrix of correlations for males, the standard error of factor coefficients would be approximately .23 and coefficients significant at the 5% and 1% level of confidence would be equal to or greater than $\pm .44$ and $\pm .58$, respectively (Harman, 1960). For factors produced from the correlation matrix for females, the standard error of a factor coefficient would be approximately .28 and coefficients

significant at the 5% and 1% levels of confidence would be equal to or greater than $\pm .54$ and $\pm .72$, respectively. Since Neuman and Salvatore arbitrarily selected loadings whose absolute values were equal to or greater than $\pm .30$, many of the interpretations they made were on the basis of coefficients whose departure from zero could be attributable to chance about one-third of the time. Their factor matrix for males produced 12 coefficients significant at the 5% level (One of the factors did not have any significant loadings.), whereas the principal component-varimax analysis (Table II) produced 15 loadings significant at the 5% level, with 11 of these also significant at the 1% level of confidence. Only 7 of the centroid-oblique coefficients for this matrix were significant at the 1% level. For the oblique factor matrix for females, only 7 significant loadings at the 5% level of confidence are found, none of them exceeding the 1% level. Three of these factors do not contain significant loadings. The principal component-varimax analysis for females (Table III) results in 13 significant loadings at the 5% level (1 for each variable on a single factor), 8 of these also being significant at the 1% level of confidence.

Oblique factors are generally more

TABLE I — Comparison of Factor Solutions

| Solutions | Percent of Total Variance Accounted for by Factors | | | | | | All Factors |
|---------------------------------|---|----|-----|----|----|----|----------------|
| | I | II | III | IV | V | VI | |
| Male | | | | | | | |
| Principal Component-Varimax: | | | | | | | |
| 13 variables—6 factors | 16 | 13 | 12 | 14 | 12 | 08 | 75 |
| 13 variables—5 factors (forced) | 16 | 13 | 12 | 11 | 14 | — | 66 |
| 12 variables—5 factors | 15 | 13 | 14 | 16 | 13 | — | 71 |
| Centroid Oblique | 08 | 07 | 08 | 14 | 02 | 07 | 46 |
| Female | | | | | | | |
| Principal Component-Varimax: | | | | | | | |
| 13 variables—5 factors | 18 | 13 | 13 | 12 | 13 | — | 69 |
| 13 variables—6 factors (forced) | 17 | 12 | 13 | 12 | 11 | 09 | 74 |
| 12 variables—5 factors | 19 | 13 | 13 | 14 | 12 | — | 71 |
| Centroid Oblique | 11 | 14 | 06 | 08 | 06 | 04 | 49 |

Note: The factors have been rearranged so that similar factors from different solutions of the same matrix appear in the same columns, except for factors IV and V for females (PA solutions), which are explained in text.

difficult to interpret than orthogonal factors, since each of the original variables will usually have loadings on several factors. As indicated in the previous paragraph, this was not the case with the principal component-varimax analysis. The uncorrelated nature of the principal component-varimax factors also makes them more easily interpreted. Since each is completely independent of the others (mathematically), one can be discussed or otherwise dealt with at the exclusion of the others.

Finally, the varimax rotation is analytic and free from any bias. It is not clear whether Neuman and Salvatore used an analytic oblique rotation or not, but at the time their study was conducted few analytic oblique techniques were in common use.

RESULTS

Males. Table II presents the six factors resulting from principal component-varimax analysis of the correlation matrix of males. Neuman and Salvatore, in discussing the interdependence of the 13 original variables, pointed out that Guilt Feelings might be expected to associate with any or all of the other test dimensions. In other words, although in any given population Guilt Feelings might be expected to correlate with any of the other 12 variables, it is not part of the

structure of any of the basic dimensions of the Blacky Test. This is indicated empirically in Table II since factor VI is determined exclusively by Guilt Feelings, and this variable does not load significantly on any of the other five factors.

Factor I, characterized by positive loadings on Oral Eroticism, Oral Sadism, and Oedipal Intensity, with a negative loading on Anal Retentiveness, roughly corresponds to the third factor — 'orality' — produced by Neuman and Salvatore.

The second factor is clearly associated with Neuman and Salvatore's sixth factor (related to 'latency') as it has a positive loading for Positive Identification and a negative loading for Narcissistic Love-Object. It is, of course, without the negative loading for Guilt Feelings in the former study, since this proved to be an independent dimension in the present analysis.

The second factor in Neuman and Salvatore's article was characterized by positive loadings for Anal Expulsiveness, Castration Anxiety, (the only significant loadings), Masturbation Guilt, and Sibling Rivalry. As pointed out by the authors, this did not clearly differentiate the phallic and anal dimensions. In the present study the third and fifth factors, also appear to represent a mixture of anal and phallic levels. Factor III is char-

TABLE II — Principal Component-Varimax Analysis of 13 Blacky Dimensions for 119 Males

| Dimensions | Factors | | | | | | h ^a |
|-----------------|-------------------|-------------------|------------------|------------------|------------------|------------------|----------------|
| | I (Oral) | II (Latent) | III (Anal) | IV (Genital) | V (Phallic) | VI (Guilt) | |
| Oral Erot | .59 ^b | -.10 | .50 ^a | -.22 | -.15 | -.10 | .71 |
| Oral Sad | .75 ^b | .01 | .05 | -.32 | .19 | .14 | .71 |
| Anal Expul | .20 | .04 | .57 ^a | -.09 | .54 ^a | -.16 | .65 |
| Anal Retent | -.54 ^a | -.34 | .04 | .17 | -.32 | .00 | .54 |
| Oedipal Inten | .79 ^b | -.30 | -.12 | .24 | -.09 | -.06 | .74 |
| Masturb Glt | -.10 | .08 | -.04 | .17 | .83 ^b | -.01 | .70 |
| Castr Anx | -.15 | -.06 | .91 ^b | .08 | .04 | .14 | .88 |
| Pos Ident | .09 | .80 ^b | -.03 | .14 | -.08 | -.04 | .68 |
| Sibl Riv | .18 | -.22 | .11 | -.08 | .65 ^b | .09 | .54 |
| Glt Feel | .04 | -.07 | .04 | .01 | .02 | .97 ^b | .95 |
| Pos Ego Ideal | -.17 | -.16 | -.30 | .87 ^b | .01 | -.08 | .91 |
| Narcis Love-Obj | .28 | -.83 ^b | .03 | .21 | -.01 | .06 | .80 |
| Anal Love-Obj | -.02 | .08 | .21 | .86 ^b | .07 | .09 | .79 |

^aSignificant at .05 level

^bSignificant at .01 level

acterized by positive loadings for Oral Eroticism, Anal Expulsiveness, and Castration Anxiety. The fifth factor is characterized by positive loadings for Anal Expulsiveness, Masturbation Guilt, and Sibling Rivalry.

Fenichel has elsewhere (1945) pointed out the frequency with which castration fears are intermingled with (and distorted by) anal-sadistic fears. He also indicated that it is very difficult to determine whether anal anxiety is regressively distorted castration anxiety or represents a vestige of pregenital anxiety aroused by parting with the breast and feces (the archaic forerunners of castration) (Fenichel, 1945, p. 276).

Factor IV, characterized by positive loadings on Positive Ego Ideal and Anaclitic Love-Object, corresponds to the first factor of the earlier study, and represents the genital level of development.

Nothing corresponding to the fifth factor in the Neuman-Salvatore study, which was characterized by a negative loading for Positive Ego Ideal and a positive loading for Oral Sadism (neither of which was significant), was identified in the present study. This factor, which the authors interpreted in conjunction with factor VI, since both were related to the latency dimension, accounted for a very small proportion of the total variance. Therefore, its failure to appear in the current study is not surprising. The fourth of Neuman and Salvatore's factors, which was characterized by positive loadings on Guilt Feelings, Narcissistic Love-Object, Oedipal Intensity, and Positive Ego Ideal (not significant at the 5% level of confidence), was associated with the oedipal level of development. A similar dimension did not appear in the current study.

Therefore, the thirteen basic dimensions underlying the Blacky Test for males, seem to account for the five levels of psychosexual development (orality, anality, phallic, latency, and

genitality) with a sixth independent dimension of Guilt Feelings. (Omitting Guilt Feelings, a 12 by 12 matrix was analyzed and rotated. This yielded factors almost identical to the first five factors of the original 13 x 13 matrix. Also the 13 x 13 matrix was "forced" to yield a five factor solution. This resulted in the same five basic dimensions, Guilt Feelings not appearing in any of them.)

Females. Table III reports the five factors produced from the principal component-varimax analysis of the correlation matrix for females.

The first factor, characterized by positive loadings on Anal Expulsiveness and Oedipal Intensity and a negative loading on Anal Retentiveness, is similar to the second factor of the Neuman-Salvatore study, without the positive loadings on Sibling Rivalry and Anaclitic Love-Object. This basic dimension is more clearly related to the anal level of psychosexual development. In both studies this is the largest factor for the correlation matrix for females. In the earlier study it accounted for 14% of the total variance and in the current study it accounts for 18% of the total variance.

Factor II is characterized by positive loadings on Penis Envy and Narcissistic Love-Object, and corresponds to the phallic phase for females, wherein penis envy occurs with its concomitant relationship to narcissism.

Factor III is characterized by positive loadings on Positive Ego Ideal and Anaclitic Love-Object. This pattern was suggested by the first, third, and fifth factors in the earlier study, but here appears more clearly as representing the genital level of development.

Factor IV is characterized by a positive loading for Masturbation Guilt and a negative loading for Guilt Feelings. This dimension seems to indicate, at its positive end, persons with high Masturbation Guilt but low Guilt Feelings, whereas in the nega-

TABLE III — Principal Component-Varimax Analysis of 13 Blacky Dimensions for 90 Females

| Dimensions | Factors | | | | | h ^a |
|-----------------|------------------|-----------------|------------------|------------------|------------------|----------------|
| | I (Anal) | II (Phallic) | III (Genital) | IV (Guilt) | V (Oral) | |
| Oral Erot | 42 | 05 | 00 | 31 | 57 ^a | 60 |
| Oral Sad | —09 | —21 | —21 | 40 | 54 ^a | 54 |
| Anal Expul | 83 ^b | 04 | —13 | 03 | 03 | 71 |
| Anal Retent | —73 ^b | 31 | —12 | 11 | 07 | 66 |
| Oral Inten | 71 ^a | 06 | 04 | 07 | 04 | 51 |
| Masturb Glt | 16 | 01 | —17 | 90 ^b | —13 | 88 |
| Penis Env | —10 | 72 ^b | 13 | 14 | 08 | 57 |
| Pos Ident | —04 | —09 | —08 | 22 | —83 ^b | 76 |
| Sibl Riv | 46 | 12 | 32 | 13 | —59 ^a | 69 |
| Glt Feel | 17 | —12 | —47 | —56 ^a | —10 | 59 |
| Pos Ego Ideal | —19 | 36 | 74 ^b | —17 | —09 | 74 |
| Narcis Love-Obj | 09 | 85 ^b | —08 | —11 | —12 | 76 |
| Anacl Love-Obj | 26 | —27 | 80 ^b | —01 | —10 | 79 |

^aSignificant at .05 level^bSignificant at .01 level

tive direction persons with low Masturbation Guilt but high Guilt Feelings would be found. This therefore appears to be a "guilt" dimension, unrelated to the psychosexual levels of development. In the positive direction the guilt is apparently related to sexual matters but not the more general social guilts. In a negative direction the social guilts predominate whereas masturbation guilt decreases.

Factor V is characterized by positive loadings on Oral Eroticism and Oral Sadism and negative loadings on Positive Identification and Sibling Rivalry. This appears to identify the oral level of psychosexual development. This dimension is similar to the first factor in the Neuman-Salvatore study, without the loadings on Positive Ego Ideal, Narcissistic Love-Object, and Anacletic Love-Object (The last two were not significant at the 5% level of confidence). It was also related to their fourth factor, without the confusing loading of Masturbation Guilt and Penis Envy.

For females, these five factors indicate four of the levels of psychosexual development (oral, anal, phallic and genital), only one of which was suggested in the earlier study (anal) where it was "denied" due to the presence of a conflicting variable. The levels of orality and genitality were present in the earlier study but not

clearly indicated. Factor II, the phallic factor, emerges quite clearly in this study without the oral contamination found by Neuman and Salvatore. Factor IV is not clearly related to the psychosexual levels of development, but the clarity with which it emerges indicates that it is a basic factor underlying the Blacky Test.

As with males, the matrix for females was reanalyzed, omitting Guilt Feelings. Five factors resulted. The entire 13 x 13 matrix was also "forced" into a six factor solution. The sixth factor was uniquely defined by Guilt Feelings, as was the case with the sixth factor of the original male matrix. This factor is omitted from Table IV which reports only the two factors derived from each of these reanalyses which differ from the original analyses.

These solutions almost identically reproduced the first three of the original dimensions (Anal, Phallic, and Genital). (They are thus omitted from Table IV). The original Factor V, identified with the oral level of psychosexual development, "split" into two factors which are reported as I and II in Table IV. Factor I, containing positive loadings for Masturbation Guilt, Positive Identification and Sibling Rivalry, is reminiscent of adolescent conflicts and may, therefore, be related to latency.

TABLE IV — Two Factors Derived from Principal Component-Varimax Analyses of 12 Blacky Dimensions and 13 Blacky Dimensions, Forcing Six Factors to be Rotated, for 90 Females

| Dimensions | 12 variables | | | Analyses | | |
|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|------------------|
| | Factor | Factor | h ² c | Factor | Factor | h ² c |
| | I (Latent) | II (Oral) | | I (Latent) | II (Oral) | |
| Oral Erot | —16 | 72 ^b | 68 | —18 | 72 ^b | 68 |
| Oral Sad | —09 | 72 ^b | 60 | —12 | 72 ^b | 60 |
| Anal Expul | 01 | 07 | 71 | —01 | 06 | 74 |
| Anal Retent | 03 | 15 | 74 | 05 | 15 | 75 |
| Oedipal Inten | 09 | 19 | 52 | 13 | 28 | 58 |
| Masturb Glt | 67 ^a | 53 | 80 | 57 ^a | 48 | 88 |
| Penis Envy | 04 | 17 | 64 | 04 | 17 | 64 |
| Pos Ident | 83 ^b | —27 | 79 | 87 ^b | —22 | 84 |
| Sibl Riv | 53 ^a | —27 | 68 | 55 | —23 | 69 |
| Glt Feel | — | — | — | 07 | —01 | 94 |
| Pos Ego Ideal | —06 | —17 | 79 | —03 | —16 | 79 |
| Narcis Love-Obj | —05 | —29 | 81 | —07 | —32 | 82 |
| Anacl Love-Obj | 07 | —01 | 81 | 08 | —01 | 81 |

^aSignificant at .05 level

^bSignificant at .01 level

^cCommunalities based on total solutions of five and six factors respectively.

Factor II, identified by positive loadings on Oral Eroticism and Sadism, is a less contaminated representative of the oral level of psychosexual development.

DISCUSSION

The orality factor for males (Table II, Factor I) is related to the orality factors for females (Table III, Factor V; Table IV, Factor II) in that they have Oral Eroticism and Oral Sadism in common. The differences (presence of Anal Retentiveness and Oedipal intensity for males, and the presence of Positive Identification and Sibling Rivalry for females in Table 3) may reflect the difference in the resolution of the oedipal conflict; that is, because the female doesn't fear castration (she has to live with it, in effect), she may be free to develop differently with less anal regression than the male. Hence, a clearer phallic factor is indicated (Table III, Factor II), whereas the male factors III and V are contaminated with regressive elements. The female's problem is to get used to the idea of not having a penis. Therefore she doesn't have to regress due to castration anxiety. The male always has the threat of castration hanging over him during his development.

It may be noted that the genitality factors (Table II, Factor IV; Table III, Factor III) are identical for males and females.

For males, the results of the factor analysis conducted in this study were similar in many respects to those of Neuman and Salvatore, with the exception of a separate factor of Guilt Feelings, which did not load significantly with any other factor. The dimensions were observed, however, with greater clarity.

For females, four levels of psychosexual development emerge without the contradictions found by Neuman and Salvatore. This suggests that the hypothesized underlying dimensions of the Blacky may be more congruent with psychoanalytic theory and female psychosexual development than was thought in the past.

Neuman and Salvatore (1958) and others (Rossi & Solomon, 1961; Dean 1959) have suggested that identification difficulty may have been a possible source of contradictory results for females and that a cat figure might promote female identification. King and King (1964) found that females did not identify more readily with "Whitey the cat" than "Blacky the dog". They relate this to the ambigui-

ity of their stimulus figure (as well as Blum's) and to the prevalent use in this culture of the masculine form of the pronoun for the third person singular when sexual ambiguity exists. It must be pointed out, however, that it was by this use of the masculine pronoun that King and King determined 96% of their female population perceived their cat figure as masculine.

In an informal study conducted by one of the authors (Robinson), an artist was employed to complete some ink sketches of a "black, female cat" in some of the same settings as the original Blacky Pictures. Fortunately, or unfortunately, the artist tried to portray a cat depicting the sexual "neutrality" she thought the original Blacky Pictures depicted.

Thirty-one college students (20 females) were asked whether the cat pictured was male, female, or could be either. 65% saw the pictured cat as male, although 35% stated it could be either. No one saw the cat pictured as definitely female. The artist redrew the sketches, adding long eyelashes and a bow; and the new pictures were submitted to 55 junior high school students (22 females). 9% of these students saw the pictured cat as male, 80% as female, 11% as could be either male or female.

Subjects of both groups were asked to rate the appropriateness of 4 names (Inky, Smoky, Slinky, Blacky) for the cat pictured. Both the college students (who predominantly perceived the first cat as male) and the junior high school students (who predominantly perceived the second cat as female) indicated a mean rating of 1.7 (1 = appropriate; 2 = slightly appropriate . . . 5 = inappropriate) for the name Blacky.

This suggests that the mere substitution of a cat for a dog (as in the King study) would not necessarily facilitate feminine identification (as they found).

These findings plus the fact that contradictory results such as Neuman and Salvatore (1958) found did not appear in this study, suggest it may be sufficient to indicate to the female testee (as per Blum's original instructions) that the dog Blacky is female. However, further studies are now in progress to determine if there is any difference in female responses when a neutral figure is used (original Blacky) and when a figure designed to promote maximum feminine identification ("black, female cat") is used. Further factor analytic studies, with a variety of subjects, should be undertaken.

REFERENCES

- Blum, G. S. A study of the psychoanalytic theory of psychosexual development. *Genet. psychol. Monogr.* 1949, 39, 3-99.
- Blum, G. S. *The Blacky pictures: a technique for the exploration of personality dynamics.* New York: Psychological Corp., 1950.
- Blum, G. S. & Hunt, H. F. The validity of the Blacky pictures. *Psychol. Bull.*, 1952, 49, 238-250.
- Dean, S. I. A note on female Blacky protocols. *J. proj. Tech.*, 1959, 23, 417.
- Fenichel, O. *The psychoanalytic theory of neurosis.* New York: W. W. Norton and Co., 1945.
- Harman, H. H. *Modern factor analysis.* Chicago: The University of Chicago Press, 1960, 441.
- Kaiser, H. The varimax criterion for analytic rotation in factor analysis. *Psych.*, 1958, 23, 187-200.
- Kaiser, H. Computer program for varimax rotation in factor analysis. *Educ. psychol. Measmt.* 1959, 19, 413-420.
- King, F. & King, Dorothy. The projective assessment of the female's sexual identification, with special reference to the Blacky pictures. *J. proj. Tech.*, 1964, 28, 293-299.
- Neuman, G. G. & Salvatore, J. C. The Blacky test and psychoanalytic theory: a factor-analytic approach to validity. *J. proj. Tech.*, 1958, 22, 427-431.
- Rossi and Solomon. A further note on female Blacky protocols. *J. proj. Tech.*, 1961, 25, 339-340.

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Received February 18, 1966

Letter to the Editor

Rudolph Holzinger's review of "Die Entwicklung des Ich beim Kinde. Ein Beitrag zur Analytischen Kinderpsychologie" in your issue of August 1966 contains some essential misunderstandings of the content of my book. This criticism aims to correct major misunderstandings that appear in the review.

The review states: "While the author claims that the small child is in great measure driven by instincts, the child later goes through the stages where it forms a fantasy 'I' and a reality 'I' side by side. Whereas in the beginning the fantasy 'I' is much the stronger, as the child grows the reality 'I' becomes stronger and the fantasy 'I' disappears." Apart from the unusual translation of the German 'Ich' by 'I' instead of 'ego' (Ich-Psychologie is Ego psychology for instance) there is nothing in my book that might be translated as 'reality ego'. Neither do I contend anything like the sentences quoted above, except that the idea of the small child's being in a great measure driven by instincts would seem to be rather a common place one. But rather than waste time in rebuttals I should prefer to present the salient ideas myself.

The main theme of this book—it draws upon the experience of 15 years of psychotherapeutic work with children—is the development of the ego as it functions in the adult personality: an ego which is adapted to reality, strives towards consciously conceived aims and directs itself according to its own values. Such an ego does not yet exist in the child before about 8 years of age: instead there are two contradictory conceptions of reality, correspondingly there are different strivings and different conceptions of one's self. As Charlotte Buhler puts it in her "Kindheit und Jugend": "For a long period there will dwell in peaceful coexistence in the child's mind both facts: the thought that the doll wills, feels, thinks and acts just as the child himself does, and the perception that the doll never moves from its place and does not do anything." These two contradictory conceptions of the world are centered around two nuclei of consciousness which I call "part-egos," one which sees the world as animated and which I call "fantasy ego" and a second which is oriented through sensual perception and which I designate as "konkretes Ich"—the concretistic part-ego. Both are not perceiving reality as it really is but see it in distortion—not according to facts as such but according to the logic of psychic

structure and its inner needs.

After an exposition of the character of these part-egos and their expression in the child's behaviour—in the different forms of obedience and selfwilledness for instance—I endeavour to show the developmental process by which the part-egos fuse into the "Bewusstseins-Ich"—the ego of adult consciousness. The psychotherapy of an eight year old girl suffering from pavor nocturnus is presented in detail and serves to demonstrate this development step by step, showing that it follows lines which are pre-established in the structure of the human psyche—the interaction of archetypes and instincts that lead the child in its growing up into the human society. This second part of the book which is complemented by three Rorschach records of the patient in different stages of the treatment leads to general considerations of the growing up of children, their discovery of the world beyond the home, their mastering of fantasy productivity in the service of the ego and the symptoms associated with this development towards autonomy and independence.

A third part of the book deals with the symptoms which appear in the adult where non integrated part-egos continue for some reason to exist i.e. depersonalisation and feeling of emptiness. Some examples out of case histories and psychotherapeutic treatment serve as illustrations.

Obviously this is a book which aims to contribute to Jungian literature in the field of child psychology as is clearly stated in its subtitle and Mr. Holzinger is right in pointing out this fact. But I have great difficulty to see in what respect "it could be argued whether the same findings would have been made if the developmental samples had been taken from a Samoan culture for example, or an Eskimo or African native culture," as Mr. Holzinger puts it. I do not believe that there is any argument about the fact that there would not be the same findings. Obviously different cultures correspond to just as different archetypal constellations and if Mr. Holzinger obtained the impression that I claim that there are no differences between cultures or human beings belonging to different cultures, he misunderstands my position.

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BOOK REVIEWS

Dennis, Wayne. *Group Values Through Children's Drawings.* New York: John Wiley and Sons, 1966, 211 pp., \$6.95.

In the preface to his book, *Group Values Through Children's Drawings*, Dennis states, "In a sense this book began on the Hopi reservation in 1941. It was there and then that I became aware of the differences among cultures which appear in children's drawings and first attempted to understand their significance." (p. v) Professor Dennis' subsequent efforts have led to an interesting and stimulating, and yet in some ways, disappointing book. The main premise of the book is that children generally draw the men they admire and who are favorably thought of in their societies. Dennis calls this the "value hypothesis" and contrasts it with the "frequency hypothesis," i.e., that children draw the kinds of men they see most frequently. He presents figure drawing data to support the contention that children's drawings reflect their own values as well as the social values of their society, insofar as these values can be represented graphically. In this task he has done an excellent job and has provided the reader with many examples and illustrations (the book contains 116 superbly reproduced drawings).

While it has a wealth of illustrations, however, the book is skimpy in other places. Dennis makes little attempt to integrate previous data concerning cross-cultural findings with the DAP. While he makes reference to a number of cultures and sub-cultures, relatively little information is given about some of them to enable the reader to understand and interpret his results more meaningfully.

Dennis feels that the use of figure drawings to measure values circumvents many of the difficulties inherent in the polling or questionnaire approach and may also supplement these techniques. However, no data are presented concerning the relationship between the DAP and other measures of group values.

Data Collection

The drawings were group administered and most of them were made by 11, 12, and 13 year old school boys who were requested to draw a whole man. There were twenty-seven main groups in all; a total of 2,550 drawings were collected from these groups.

One chapter is also devoted to a discussion of a small sample of drawings done by girls who were asked to draw a woman.

The clear and logical exposition of Dennis' point of view may be noted from the following quotes:

The kind of man who is drawn must, of course, have been seen or heard about or read about. But every child has seen many kinds of men, in the flesh or in pictures. Therefore, when asked to draw a man, he must make a choice. Because only one kind of man may come to mind, he may be quite unaware that a selection has been made. The child may not know that he is drawing one kind of man in preference to many other kinds which he has seen. (pp 3-4)

...Although we will discuss only drawings which represent persons, we believe that there exists a general principle that children asked to draw a referent which offers a multiplicity of forms usually draw the form which they prefer... If they were asked to draw plants, they would draw those bearing flowers or fruits, not noxious weeds. We have chosen to have children draw men, rather than... plants, because their choices of men have a greater social significance. (p. 5)

While the present writer tends to agree with these statements, he feels that Dennis' approach to the DAP is somewhat too narrowly conceived. Many psychologists feel that a figure drawing may be an indicator of positive or negative self-concept, ego ideal, or a representation of someone disliked by or worrisome to the child. In this sense the author does not agree with Dennis that the study of drawings as personality measures is irrelevant to the value hypothesis. It is difficult to understand why Dennis attempts to divorce his approach completely from the use of the DAP as a projective test. This writer feels that data derived from considering the DAP as a projective test of personality bear directly on Dennis' findings. For example, Dennis reports differences in frequency of smiling faces for different cultural groups, which he interprets as "...having to do with the relative importance of hedonism as a goal," and which he feels "...reflects the extent to which to have a smiling face is a social goal" (p. 109).

While Dennis considers other possibilities,

he does not consider alternative explanations with any degree of thoroughness. He states, "We are convinced that facial expression in drawings has little to do with the pleasant or unpleasant state of mind of the artist while he is drawing, or at other times, but rather that it has to do with the vision of what men should be." (p. 112) However, there is evidence to indicate that pleasant or unpleasant states of mind are indeed associated with the depiction of a smiling or an unsmiling face in a figure drawing. (Fox *et al*, 1958) Thus, Dennis' quite ingenious but highly speculative discussion of smiling and unsmiling faces in figure drawings is certainly open to question. This writer feels that it is inappropriate to consider the DAP as an index of social values without also considering the projective aspects of the test. In the case of smiling faces depicted in drawings, behavioral data is needed concerning the relationship between frequency of smiling and the depiction of smiling in the drawing.

The chapter entitled "Modern Dress and Traditional Dress" is central to Dennis' "value hypothesis." Dennis feels that the boy who draws a modern costume prefers other less visible aspects of modern life in addition to modern dress. He hypothesizes that "... when the children of an ethnic group, most of whose members still preponderantly wear the traditional costume, draw men in modern costume, further cultural change will occur" (p. 37). Thus, Dennis hypothesizes that the frequency of modern men depicted in boys' drawings provides "an index of modernization as a goal" (p. 37). For example, Dennis studied a group of Indian school boys near San Cristobal, Mexico. The Indian men and boys wore distinctive native costumes, and yet 70% of these children drew men in modern dress. Note that no advertisements, movies, comic books, or newspapers were available to these people. The Indians constituted the majority of the people in their area but were of lower social status compared with the Ladinos, the minority ruling class. The Western appearance and dress of the Ladinos is reflected in the drawings of the lower class Indian children. Despite the fact that the Ladinos were vastly outnumbered by the lower status Indians, they (the Ladinos) never drew Indian costumes, but showed that they could when asked to do so.

Japanese children *all* drew men with Oriental features, and yet a large percentage of Japanese men were drawn wearing Western clothes. Dennis states, "The attitude represented by the Japanese drawings seems to be: we accept Western technology, but we prefer

our own physiognomy." (p. 70) The findings are quite different for Negro groups. Only one child out of 1,650 Caucasian children drew a Negro, but Negro children also seldom drew a Negro. These data are entirely consistent with findings reported by Frisch and Handler (1966) who found that the Negro children drew whites, except that the hair area was overelaborated in the Negro sample. Dennis states, "The inescapable conclusion appears to be that Negro children who draw a white man are drawing the appearance which they would like to possess. They may be resentful of the treatment which they have received from white people, but they would like to look like them and to have their social position." (p. 74) In this regard it would be interesting to obtain drawings from such groups as the Black Muslims. It would be expected that members of this group would draw Negroes rather than whites.

Dennis finds a wide range of drawing skill among the various groups in his sample. For example, the Heidelberg boys and the Japanese boys drew quite well while the Hassidim and some of the other groups draw very poorly. Does the variation in drawing skill lie in degree of practice in drawing the human figure, or are other more important variables involved? Perhaps Witkin's work (Witkin, *et al*, 1962) on psychological differentiation as it is reflected in figure drawings would be meaningful here. This writer (contrary to Dennis) feels that drawing style is associated with the content of the drawing. It is relatively difficult to depict differentiation in content if the drawing is relatively crude. Drawing quality also seems to play a larger role in determining presence or absence of masculine symbols than Dennis appears to indicate.

In chapter nine, "The Religious Content of Drawings," Dennis concludes, "... few eleven-, twelve-, and thirteen-year-olds show concern with religious men, religious places, religious activities. This need not show an antireligious sentiment but indicates that a deep positive interest in religion is infrequent, except perhaps on the part of the Hassidic boys." (p. 134) In this regard, it would be interesting to collect figure drawings from highly religious adults. Do the drawings of these people depict people praying, and do adults who state that religion is central to them depict people praying?

The book leaves unanswered a number of questions: Can the attitudes expressed in the figure drawings be verbalized? If so, then the

use of drawings as a measure of group values would be superfluous. How important are the attitudes expressed in figure drawings, compared with other sets of values for these groups which are not reflected in the drawings? The answers to these questions are not contained in this book, but perhaps a future volume by Dennis will address itself in part to these questions. The presentation of the material in the present volume and the questions it did answer, however, were quite enjoyable and enlightening. While this writer agrees with Dennis that "What is needed is more 'validation'" (p. 208), he also feels that the book will facilitate a great deal of research in the future.

REFERENCES

- Fox, Cynthia, K. Davidson, F. Lighthall, R. Waite, and S. Sarason. "Human figure drawings of high and low anxious children." *Child Development*, 29, 1958, 297-301.
- Frisch, G., and L. Handler. "Draw A Person differences in Negro and White drawings: A cultural interpretation." Submitted for publication.
- Witkin, H., R. Dyk, H. Faterson, D. Goodenough, and S. Karp. *Psychological Differentiation*. New York: John Wiley & Sons, 1962.
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Grant, Vernon W. *This is Mental Illness*, Beacon Press, Boston, Mass., 1966 (paperback edition), Pp. 210, \$1.75.

Singularly, it is the subtitle, "How It Feels and What It Means," which is the give-away to the meaning and substance of this engrossing book. It concerns the thinking, the suspicions, the delusions and hallucinations of a sampling of the schizophrenics with whom Dr. Grant worked, befriended, and learned to accept as few others have done. He has been the focus, at times, of their hostility as well as their friendliness.

The author states that his single purpose in writing this book was "to show that the outwardly strange behavior of the mentally ill not only makes sense in terms of normal human feelings and desires, but that much of it, while seemingly pointless as well as abnormal, actually serves a purpose. The symptom may in some way defend against fear, reduce fear, ease a feeling of guilt or protect

self-esteem." With so much effort and interest of therapists usually directed at the cause rather than the symptom, this is a distinct, and perhaps welcome, change of viewpoint.

Grant does not consider the cases he presented as a series of success stories for he admits that not all of those on whom he reported improved and others were released before the success of the therapy could be ascertained. However, his concern was not in this direction, nor in the character of the treatment, but rather "the dynamics and meaning of illness."

This book is directed not only to the practitioner or the student but mainly to the layman in order to develop in them greater understanding and acceptance of the meaning of mental illness. Thus, his is an educational process with specific ramifications. Grant believes that with most of the public never coming in contact with a mental hospital, his book would invite the layman in to get a "safe" but instructive view of what takes place within the walls of the typical mental hospital. He feels that because there is so much fear of mental illness only through understanding can this be removed. On this point this reviewer is in total accord. To make the book meaningful for the layman, technical terms have been omitted.

Dr. Grant concludes his short but instructive book with three exceptionally fine chapters which he has entitled "The fight for reason," "What is schizophrenia?", and "What can be done?". He describes the schizophrenic's difficulty with language, not as we think of it, but because of the blocking, the meaning of his fears, anxiety, guilt, personal problems, and his difficulty in communicating these to others. He shows the gross anxiety that is experienced as well as the unconscious means taken by the psychotic in avoiding this anxiety. In this way, the symptom becomes a form of defense. In describing the schizophrenic, Grant shows the suffering that characterizes the mentally ill. Finally, the author reflects his belief that to avoid the possibility of schizoid behavior there must be the development of a sense of acceptance, a feeling of being loved, wanted, and respected in young children. As they grow up they need to have the security which they get from feeling of belonging, that they have some importance, that their needs and ideas have meaning.

This is not a difficult book to read, whether by the mental health worker or by the layman. Even though directed toward the latter, there is much that the experienced mental

health worker will find useful. The book is not the whole work in schizophrenia and is not intended as such. Physiological and genetic factors were not covered and one might get the impression that the author was oversimplifying the topic. Understanding the purpose of the book, however, should show it for what is intended—a meaningful, informative, description of the pangs of suffering of the mentally ill and how understanding by the public can reduce the fear that strikes when one comes in contact with it.

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Tomkins, Silvan and Izard, Carroll E.
(Eds.) *Affect, Cognition and Personality*, Springer, New York, 1965.

In their preface to this volume, Tomkins and Izard state that it was their intention to accelerate the growing interest of numerous investigators in the feasibility and significance of the empirical study of affect. The book contains 14 chapters grouped in eight parts which are identified by titles, such as "Affect and Learning," "Affect and Child Development," "Affect and Social Processes."

Contributed to by a total of 21 authors, containing presentations of empirical data in considerable quantity and, as admitted by the editors, having no consensus among the theoretical positions of the authors, this book presents more than ordinary difficulties to the reviewer. To call it correctly a non-book is not, however, to belittle its value. The lack of a consistent frame of reference and a unified theoretical position is compensated for by excellent scholarship, good experimental craftsmanship in an area characteristically difficult to handle, and eloquent expression of many stimulating ideas.

Comment must be restricted to a small sampling of the chapters. Tomkins, in "Affect and the Psychology of Knowledge" roves widely among fields of science, art, literature and philosophy in an enjoyable exposition of his theories upon the structure of ideology and its polarity in Western thought. He concludes with synopses of some imaginative research in which questionnaire-type instruments, a projective technique and a brass-instrument perceptual device were used in useful combination. Messick's chapter on the impact of negative affect on cognition and personality, discusses in detail an experiment in which a substantial battery of personality

and cognitive measures was administered to a group of subjects the day after the assassination of President Kennedy. Three months later, the same battery was given to a comparison group. The intriguing results are well-presented and discussed. Affect resulting from the assassination is also the subject of a chapter by Tomkins, McCarter and Peebles. A wealth of data, obtained from free responses (liberally quoted) as well as from structured questions, is analyzed in a variety of ways and extensively discussed. The central question of the study, predicated upon Tomkins' theory of commitment, involved an expected (and confirmed) increase in positive affect in the subject population, as a result of the assassination. Sufficient data were collected, however, to enable the authors to make a much broader contribution, not only to the psychology of grief and mourning, but also to personality theory and attitude-origin and change.

In a chapter by Lenrow entitled "Studies of Sympathy," the modest claim is made that a toehold has been established for empirical work in this area. The technique as well as the substantive findings are likely to influence further work.

A section on "Affect and Facial Responses" adds to a line of work having antecedents in the classic contribution of Darwin. Leventhal and Sharp report a careful study on facial expressions as indications of distress, and Exline and Winters discuss the results of experimental work involving mutual glances in dyads. Both chapters make a contribution to knowledge of stimulus properties and affective correlates in emotional expression.

So much for a random sampling of the book's content. Other important chapters exist: for example, Gardner Murphy's excellent summing up and concluding discussion. The reader will undoubtedly agree with him that much good material upon affect has been presented, and that the lack of integration of the material is excusable in the context of the present state of science. The book is eminently suited to the readership of the present Journal. The editors are to be commended for drawing together an excellent panel of contributors and enabling them to present and discuss their materials more comprehensively than would have been possible in most psychological journals.

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The membership is being encouraged to acquaint prospective applicants with the broadened interests of the Society as reflected in the expanded pages of the Journal which is now published bimonthly instead of quarterly. It is urged that special regard be given to those who are completing their graduate training in Psychology or who have achieved their doctorate as well as to those of more advanced experience whose interests include training, research, and clinical application related to the subject of personality assessment.

Application forms may be obtained by writing directly to Gordon Filmer-Bennett, Ph.D., Membership Committee Chairman, Box H, Winnebago, Wisc. 54985, or to the Executive Secretary, Mrs. Marilyn Weir, 1070 East Angeleno Avenue, Burbank, Calif. 91501. For convenience, suggestion slips accompanying the annual dues statements may be used to this end.

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(Act of October 23, 1962; Section 4369, Title 39,
 United States Code)

DATE OF FILING
 10/7/66

TITLE OF PUBLICATION
 Journal of Projective Techniques and Personality
 Assessment

FREQUENCY OF ISSUE
 Bi-monthly

LOCATION OF KNOWN OFFICE OF
 PUBLICATION

210 E. Wilson Ave., Glendale, Calif. 91206

LOCATION OF THE HEADQUARTERS OR
 GENERAL BUSINESS OFFICES OF THE
 PUBLISHERS (Not printers)

1070 E. Angeleno Ave., Burbank, Calif. 91501

NAMES AND ADDRESSES OF PUBLISHER,

EDITOR, AND MANAGING EDITOR
 PUBLISHER

Society for Projective Techniques & Personality
 Assessment, Inc.

1070 E. Angeleno Ave., Burbank, Calif. 91501

EDITOR

Bruno Klopfer, P.O. Box 2971, Carmel, Calif.

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 Executive Editor

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